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East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS

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EAST EUROPE REPORT

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INTERNATIONAL AFFAIRS

CEMA STANDARDS PROMOTE MICROELECTRONICS, SUBSTITUTE PLASTICS

East Berlin STANDARDISIERUNG UND QUALITAET in German No 6, Aug 84 pp 151, 152

[Article by Joachim Schoenermark, Vice President of the Standardization, Measurement and Commodity Testing Office: "Greater Manufacturing Effectiveness and Quality Through Standardization"]

[Text] In order to further realize economic strategy, the 7th and 8th conferences of the SED Central Committee established the goal of increasing the emphasis placed on science and technology as the starting point and primary method of achieving the necessary increased growth of manufacturing effectiveness and quality. Such emphasis includes establishment of a market-oriented range of products for export and domestic consumption. Our national economy must be strengthened through new technologies and new products.

The purpose of standardization in achieving this goal must be to effectively support the above-mentioned growth process and to contribute to more effective utilization of our main reserves in order to increase the effectiveness and quality of our scientific and technical activities. To do this, high-level standardization procedures must be implemented--above all in the area of renovation of manufacturing facilities--while at the same time ensuring that quality and economic performance remain at a high level. In addition, the level of technology and the effectiveness of manufacturing must be increased in conjunction with modern, highly effective quality control, measurement and testing methods and equipment. New reserves must be developed in order to economize on material and energy; this can be done above all by upgrading material. More effective utilization of every possibility of international cooperation with the USSR and the other CEMA nations also allows results in all fields to grow more quickly than overall expenditures. The socialist economic system provides all prerequisites for widespread use of standardization as a direct part of scientific and technical activity and as a link to manufacturing and trade.

New legislation to increase realization of management, planning and economic accounting tasks, as well as the new regulation concerning standardization, point the way in this direction.

In conjunction with the tasks and goals in scientific and technical planning to significantly increase our share of high-quality products on a worldwide

basis, standards--particularly factory standards with quality guidelines--are an important tool of orientation and evaluation for use by the ministers and general directors in the establishment of national quality policy. Factory standards with quality guidelines must be available upon conclusion of research and development work in order to ensure that standardization becomes an effective guide for increasing product quality. These standards are in a certain respect a continuation of the quality guidelines of the performance specifications and must be continually updated in accordance with current and projected international trends. In this regard, factory standards with quality guidelines, as a new form of standardization, reflect the experiences of model combines and enterprises in this area.

Initial results and experience with these standards confirm that they are the most important guide in achieving and maintaining high product quality.

Economic effects clearly reflect the complexity of standardization in the achievement of basic scientific and technical goals.

The need to increase the technological manufacturing level means that standardization must support a considerable increase in mass-produced goods and optimum product ranges. Standardization must also promote the implementation of highly productive modern technologies up to and including the use of industrial robots. This goal can be met through a high degree of repeatability and standardization of subassemblies and discrete components and by ensuring high compatibility. These factors tend to continually increase manufacturing effectiveness while at the same time affecting the degree of renovation of manufacturing facilities. Significant steps in the direction of increased productivity and quality are possible particularly in the case of overlapping subassemblies and discrete components and those which are used in the fields of microelectronics, robotics and sensor technology. In order to achieve significant economic improvement, any increase in the level of technology must go hand in hand with the development and implementation of modern, highly-developed quality control, measurement and testing methods and equipment.

Another important factor in increasing economic performance is the development of new reserves in order to economize on material and energy, above all in conjunction with the upgrading of material in the combines and enterprises. In this regard, the effectiveness of standards must be increased by applying them more consistently in order to improve the ratio of expenditure to result. In order to do this it is necessary to establish and utilize progressive computational, design and planning specifications which regulate the specific use of materials and energy, and to ensure optimum upgrading of those raw materials and other materials, as well as reusable secondary raw materials. Good economic results are achieved in planning, design and manufacturing in those instances in which the standards used meet the strictest requirements, do not permit subjective interpretation and are applied consistently.

Product quality and technological level of manufacturing go hand in hand with high economic performance. This has been shown, for example, by standards TGL 42103 and 42104, "Polyethylene-Lined Pipes and Fittings", prepared at the Riesa pipe combine. The quality specifications for the thickness, finish and

adhesion of the plastic linings as well as increased pipe service life compared to galvanized pipe have led to use of considerably less rolled steel and zinc.

This principle is also reflected in standard TGL 11206/02 which deals with the general technical specifications of paper-insulated, low-frequency communication cables. In the course of the research and development project entitled "reduction factor cable with plastic jacket", the conventional seamless internal scavenge masses were replaced by newly-developed polyester film. This new design proved to be more economical while at the same time increasing serviceability. In addition to a significant reduction of original costs in the manufacture of cables, the accelerated introduction of these standards has led to a reduction in the amount of PVC and lead used, saving more than one million marks annually.

The highest scientific and technical level, high quality and comprehensive compatibility are also good prerequisites for positive economic results in terms of specialization, cooperation and international trade.

Highest-Level CEMA Standards

In June of this year, the economic consultants of the CEMA member nations agreed at the highest level on new, more demanding tasks, the purpose of which is to further solidify socialist economic integration. They also decided on concrete steps to continue cooperation in the area of standardization and to improve product quality. For the combines and enterprises this means the establishment of additional possibilities for increasing cooperation among our member nations and to more effectively utilize international cooperation based on our own achievements. We must therefore collaborate at the highest level in the establishment of CEMA standards for specialized and cooperative products as well as for products involved in reciprocal trade, and we must be consistent in our application of these standards to such products.

We must in the future employ standardization as an important tool of our socialist state in the implementation of SED economic and social policy in order to ensure and further implement health, occupational safety and fire protection (GAB) regulations as well as to protect our natural environment. Based on good results and experiences, these activities must in the future become a part of the realization of overall economic goals such as the development of low-waste technologies, particularly in the chemical and metalworking industries. One such GAB standard is TGL 30345/01 to /03, the subject of which is safety, procedural and fire protection regulations for LPG systems. This standard enables commercial vehicles to be equipped with LPG systems as a prerequisite for the conversion of taxis to LPG fuel.

The 7th and 8th conferences of the Central Committee have set new, higher goals for continued realization of economic strategy in all areas of our national economy. Now it is the job of the ministers, general directors and directors of the enterprises to make comprehensive use of the possibilities for standardization, and to further increase the effectiveness of the standards in light of the above-mentioned considerations.

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INTERNATIONAL AFFAIRS

REFORM EFFORTS OF BLOC STATES HIGHLIGHTED

Warsaw ZYCIE GOSPODARCZE in Polish No 46, 11 Nov 84 p 15

[Text] In the most recent issue of WEKTORY one reads the almost desperate words that "No matter what one says or writes, nothing will change." "Give your paper away so that children can have notebooks" is a statement which in the opinion of the editorial staff of this monthly reflects the attitude toward economic research and solutions, and which "continues to achieve citizenship status for itself. The mistrust concerning the ability to bring matters to a successful close concealed in these statements," WEKTORY notes, "is lacking in neither historic nor contemporary conditions, and we do not intend to demonstrate that it concerns an exceptional, secondary, etc. situation. However, it is worthwhile to note that in adopting this attitude toward economic realities we become the bricks in a wall of callousness and conservatism, which renders it difficult to promote contemporary views and practical solutions. In fact, we also cancel whatever chance there is to achieve positive changes when we attack not only the obstacles but even the very abilities to overcome the difficulties which appear."

Translations of Soviet articles on the problems of a large-scale economy appeared in the aforementioned issue of WEKTORY, as did articles concerning Hungary's small and large enterprises with regard to economic reform in that nation. The author, Vadim I. Pavlichenko, after presenting the benefits of a large-scale economy indicated, among other things, that the benefits are dependent upon the degree of utilization. He noted that this does not automatically result in expanded production. In conclusion, the author also stressed that the benefits of a large-scale economy are directly dependent upon the subordination of economic development to social needs.

The articles by the Hungarian authors are extremely interesting. Andras Hegedus' article "The Large Enterprises and Socialism" (this article refers to Erzsebet Szalaj's book recently published in Hungary) states, among other things, that consistent economic reform cannot be achieved if modifications are not made in the industrial structure of the large enterprises. During the years 1968 to 1972 managers of the large enterprises successfully opposed reform. In effect, as a reward they were promoted and also received greater support and assurances. In 1973 their workers received wage adjustments as a result of Central Committee antireform legislation of November 1982. Although they appeared inevitable they were noticed in time by the management as well as the workers, and consequently the damage was not irreversible. A return to

a policy of reform was achieved in this manner, cautious at first but becoming more daring and self-assured with time. The unification campaigns ceased and the small- and medium-size enterprises withdrew from this enormous and mammoth empire. The reduction in economic ministries, despite justifiable doubts, hurt the large enterprises. This material is of great interest to the Polish reader. The author also writes about the danger of continuing old practices in the combined industrial ministry. In his opinion, one must expect continued changes in the structure of the large enterprises, which in effect will result in a long-term process of the formation of a more sensible structure of the Hungarian national economy, in view of the size of the enterprises. This would facilitate flexibility within the Hungarian economy and adaptation to the more difficult external conditions as well as to the more complex internal conditions.

Andras Hegedus' opinion is viewed in different ways in Hungary. In the WEKTORY issue discussed, a translated article presented by another Hungarian author, Zsigmond Bakos--"Comments on the Reflections of Andras Hegedus"--attests to this. In this article he attempts to demonstrate that it is not possible to see the reasons for ineffective investment and credit decisions exclusively in the large enterprises. Zsigmond Bakos believes that Andras Hegedus took an extreme view in this matter.

We have concentrated our attention on translations, yet the discussed issue of WEKTORY also contains many articles by Polish authors. Here are some of them.

"The Intellectualization of Labor," by Stanislaw Czajko. The author believes that because of the technology gap a qualified labor force represents Poland's only option. But the sole opportunity for these individuals and for the economy exists in the narrowing of the technology gap. Therefore, our reasoning should be in the other direction.

"The Legal Aspects of Inflation," by Romuald Gilewicz. Monetary policy has its legal conditions. This legal tradition goes back to the interwar period. The strengthening of this law is meaningful with regard to surmounting inflation, and makes for worthwhile reading.

Henryk Sroka's article "The Transformation of Japan's Industrial Structure" contains many interesting details on Japanese industry. The WEKTORY issue also contains quite a bit of information on economic problems as they are currently viewed in China, thanks to the translation of the article by the Chinese economist Mao Qiang, "An Evaluation of Sun Yefang's Economic Theory."

As a result, the majority of the articles in this issue of WEKTORY deal with the economic problems of other nations (the majority in translation). As is evident from the articles, economic reform in each of these countries is complicated by a process which meets with great opposition and is not bereft of problems. Should WEKTORY readers be pleased to find that the realization of proposals and suggestions resulting from studies and solutions is difficult not only in Poland?

BULGARIA

DEVELOPMENT OF EFFICIENT COAL MINING METHODS EXAMINED

Sofia ENERGETIKA in Bulgarian No 9-10, 1984 pp 18-22

[Article by engineer Vasil Zanchev of the Energetika Corporation, and engineer Dimitre Konstantinov of the Ministry of Energy and Natural Resources: "Development and Technical Progress in Coal Mining"]

[Text] Coal mining here began its development over 100 years ago in the Balkan and Pernik basins. In 65 years, under the capitalist system in Bulgaria, only 53 million tons of coal were mined, the same as is now mined in a little less than 2 years.

The Bulgarian Communist Party and the people's government value the tremendous role of coal mining and power supply in the country's rapid industrialization.

A broad front is being opened up for geological study of the finds with the goal of quickly increasing the output of coal and the production of electric and thermal energy.

The balance reserves of coal have grown from 430 million tons in 1944 to 868.1 million tons in 1956, and in 1983 they reached 5 billion tons. The output of coal also increased during the first 3 years at a relatively low rate: 1 million tons on average annually.

In 1945, the general output of coal was 3.562 million tons, of which 3.184 million tons were brown, 88.8 percent; only 250,000 tons were lignite, 6.95 percent; 114,000 tons were black, 3.14 percent; and 12,000 tons were anthracite, 1.08 percent. The relative share of open extraction from the general quantity of coal production was only 18 percent. Underground mining as well as open pit mining were carried out by hand with obsolete and primitive technology. Human and horse power were the basic digging and transporting forces, and because of this disparity existed between the coal output and the need for coal in the national economy.

The problems of lagging behind in coal mining were the subject of discussion at the Sixth Congress of the Bulgarian Communist Party. In fulfillment of its resolutions on 16 April 1954, the Central Committee of the Bulgarian Communist Party and the Council of Ministers adopted Directive No 204, and certain of its points have not lost their significance for the development of coal mining

here today. The requirements in regard to more rapid mechanization of the processes, for ensuring sufficient ready reserves for 3 and 6 months, are still in force today.

The application of cyclical schedules and the norms for the cycles gave a strong impetus to the development and perfection of the organization of production and labor. Despite everything, the total coal mined in 1955 was barely 10.046 million tons, of which 7.051 million tons were brown, 70.1 percent; 2.702 million tons were lignite, 27 percent; 162,000 tons were black, 1.6 percent; and 130,000 tons were anthracite, 1.3 percent. The relative share of open pit mining was 36.6 percent.

The true blossoming of coal mining and power supply came after the April Plenum of the Central Committee of the Bulgarian Communist Party in 1956, when the whole economy of the country began to develop on a large scale and with great scope, when lignite from the eastern Maritsa find, the largest in the country, began to be implemented, and with the construction of the Maritsa Iztok mining energy complex.

The April Plenum is noteworthy because it gave scope to the large scale and predominant application of the open pit method of mining, and based on this, the implementation of high-quality mining transportation technology. At the newly built open mines, Bolshevik, Chukurovo, Al. Milenov, Stanyantsi, the Soviet high-quality SE-3, SE-3U, EKG-4, EKG-4.6, and other excavators appeared.

However, the high point of development after 1960 was the subsequent operation of the giant open pit mines in the Maritsa Iztok, Troyanovo 1, Troyanovo 2, and Troyanovo 3 complexes.

In 1970, 15 years after the April Plenum, the general output of coal was 31.4 million tons, that is, 3 times more than in 1955. The structure of coal mining had been radically altered. The mining of lignite now occupied first place, 21.945 million tons, of which 17 million tons were from Maritsa Iztok. Its relative share was already 70 percent. Brown coal accounted for 8.786 million tons, 28 percent; black, 473,000, 1.5 percent; and anthracite, 174,000 tons, 0.50 percent. Open pit mining overtook underground mining in a perceptible way, and it accounted then for 73.4 percent of the general output.

In 40 years of the people's government here, we have mined around 800 million tons of coal, 15 times more than during the years of bourgeois government.

Together with the quantitative growth in the mining of coal, in recent years the achievements of scientific-technical progress have been applied on a broad front, in the areas of mining and processing the coal.

Technical progress in coal mining includes the development of complex mechanization, the completion of transport conveyerization, implementation of modern means in dispatcher management and connections, perfecting the technologies of mining and the systems for processing the strata, increasing the loading at

the fronts, improving the quality of the coal, and increasing the safety of the miners working there.

At the open pit mines, transportation of the coal and ground cover with rubber conveyer belts has been implemented on a massive scale, since it has significant advantages in comparison with rail transportation.

The mechanization of the maintenance and shifting of railroad lines is being implemented.

The relative share of mechanized output at underground mines has grown from 29.5 percent in 1975 to 39.0 percent in 1983.

In 1983, 6.4 million tons or 19 percent of the gross output of coal were given over to mechanical processing. The enrichment plant in Pernik was reconstructed, and the technological efficiency of the plants in Bobov Dol and Tvarditsa was improved.

The quantity of briquettes produced at the Maritsa Iztok complex grew by over 1 million tons.

The phenomenal growth in the output of coal in the open pit mines ensures higher technical-economic indicators and more favorable working conditions. The relative share of coal mined in the open was 81.38 percent in 1983, and this was far higher than the worldwide average.

The efficiency of open pit mining is linked most of all to the concrete geological and technical mining conditions of the find. Taking into consideration the determined economic limiting conditions is an important requirement that has decisive significance in studying the open mining, and comparing it with the economic indicators of the possibilities for mining underground. At each open pit mine where useful mineral resources are extracted, the specific task of economic compensation for the necessary open work must be decided.

The high level of concentration at the open sites--2.5 to 7 times higher than at the underground sites--permits full mechanization and partial automation of the processes to attain significantly higher productivity of labor, even at great depths. The average world indicator for coal is 3 to 6 times higher in comparison with underground mining, and for brown and lignite coal 2.5 and 4.5 times higher.

Now the main direction for economically effective open mining of coal is considered to be constantly increasing the concentration of production capacities, for the complex of processes as a whole, as well as its separate components. At major finds with sufficient reserves of coal, the annual output at one open pit mine should reach about 60 million tons, and in the future up to 90 million tons.

With the full development of our two largest mines, the Troyanovo-Sever and Troyanovo-Yug, their annual capacity will reach 19.5 million and 26 million tons, respectively, which is a great achievement for our nation.

The general growth in coal mining in the open way is being accompanied by constant implementation of high production machinery. Rotor excavators with the highest productivity are now being produced by West Germany, followed by the GDR, Czechoslovakia, and the USSR. At the Fortuna open mine in West Germany, the largest rotor excavator in the world is working; it has a daily production capacity of 240,000 cubic meters. With the start of operations of the first capacities at the Maritsa Iztok complex, chain multiscoop excavators on rail lines with a daily production capacity of 10,000 cubic meters were primarily used. Now rotor excavators on caterpillar tracks of the Rs 2000 type, produced in the GDR, are working there, and they have a daily production capacity of around 30,000 cubic meters. The possibilities of acquiring even more productive excavators are being studied, especially those which would be suited to the conditions of the eastern Maritsa mines.

With the joint efforts on the principles of cooperation and bilateral and multilateral collaboration between the member nations of the Council for Economic Mutual Assistance, work is proceeding forcefully on adopting the production of heavy bulldozers with various accessories, graders for the movement of conveyer belts, hoisting machines with long shafts and great hoisting capacity and roadability, devices for cleaning the conveyer belts, equipment for cold and warm vulcanization of the rubber sheets, for regenerating them, and other assisting mechanization.

More complex mining conditions require improvement in furnishing the mechanical influence over various types of coal and rocks. We have in mind here the inclusion of hard rocks, pieces of coal and marl of unusual size, highly watery clay, etc., which represent the so-called anomalous geological and technical mining conditions.

The Maritsa Iztok complex has these types of problems in its ground cover and the mining of coal, and they must be resolved in the shortest possible time.

Transportation processes have acquired great significance in the past decade in the development of open pit mines for the mining of coal. Around 40 percent of the production costs, 45 percent of the basic production funds, and 50 percent of the workers are occupied with the transportation processes. This is why in recent years, and in the future, all nations will strive toward minimization of the transportation processes, especially at the open sites.

The minimization of transportation processes, and from there the lowering of transportation costs, will have a decisive role in the economic compensation for open pit mining.

We see the complete elimination of transportation processes as the primary and basic direction, through direct filling with ground cover of the space that had been occupied by means of powerful draglines and single scoop excavators with lengthened working mechanisms. At the present time we almost never use the non-transportation system at our open pit mines. In the United States, the relative share is 80 percent, and in the USSR there is a trend to reach 26 percent by 1990. With the presence of the corresponding technical mining conditions, it could and should be applied.

We consider the transportation of ground cover over the shortest possible distances as the second direction; the ground cover is carried over the territory with the aid of transporting and filling machines, various types of filling and shaping devices, and the longest possible shafts on the graders. This direction is a prospective one for the Maritsa Iztok complex, as well as the future open pit mines in the Elkhovo, Sofia, and Lom basins.

Shortening the transportation distances by using rubber conveyer belts through the application of layered removal of the earth with horizontal and oblique layers is the third direction in the minimization of transportation processes. And this direction can find application at our open pit sites, where the ground cover is carried away on conveyer belts.

In contrast to underground mining, at the open pit sites a much greater step forward has been made in mechanization of the processes and in the technologies. However, the basic direction here, as all over the world, is to increase the efficiency of open pit mining of coal, as before and into the future, by obtaining the highest possible level of utilization of time and capacities of the basic mining transportation supply, of all production funds.

In the first years of people's government, the systems applied for processing the coal with short coal faces were not efficient and had low productivity for the labor involved. The first concern of the leadership of the G. Dimitrov state mine in Pernik was to ensure widespread implementation of the system of "long columns for stretching the layer," or as it was called then, the "broad-front" system. The application of this system at the mines in the Pernik basin began in 1945-47 and gradually was extended to all mines in the country, which processed slanting and oblique layers. Now with short coal faces, we process primarily steeply declining layers with the "basement destruction" system, and 82 percent of the underground output is obtained from fronts that have a depth of 50 to 100 meters. With the implementation of the most efficient processing systems, the size of the preparatory passage construction required for obtaining each 1,000 tons of coal has been decreased by a factor of two.

Lengthening the fronts, perfecting the transportation means, mechanizing the drilling of holes for explosives, implementing metal support systems, and other procedures have led to a significant increase in the productivity of labor. A radical breakthrough in the field of mining work, however, began in 1965, when the first mechanized mining complex, obtained from the USSR, was put into operation at the Gita underground mine in the western Maritsa basin. With this complex, we mechanized the digging, loading, and transportation of coal at the front. These operations are conducted under the protection of a mechanized, hydraulic support system that can move by itself, thus eliminating the danger of the upper part of the mine collapsing. The first experiment at the Maritsa Basin was a successful one. The number of mechanized complexes in the country grew quickly, and during 1980-81 they were used to obtain approximately 39 percent of the coal mined underground.

The complex natural conditions and the variable characteristics of our coal finds, which in most cases are not favorable for the implementation of

comprehensive, modern mechanization, have created difficulties for increasing the mechanization of mining. Despite this, there is a possibility that by the end of the Ninth 5-Year Plan 50 percent of the coal mined underground will be extracted by mechanized complexes, if mechanized complexes with a more perfected construction are used.

The complexes used up to now have a carrying capacity of 35 tons per square meter. Using them in 1972 in the western Maritsa basin, average outputs at each front were 605 tons per day. After the favorable sites had been exhausted and mining work was carried out at a greater depth, the average output at each front gradually decreased to 372 tons per day in 1983. Scientific investigation shows that the hydraulic support systems of the complexes designated in the western Maritsa basin must have a carrying capacity of not less than 80 tons per square meter, telescopic roofs for supporting the top of the area that has been cleared by the combine, instruments for protecting the front of the coal face from landslides, devices for moving the support sections without tearing the roof of the mining area.

The coal strata at the Bobov Dol United and Chernomore 2 mines are distinguished by tremendous variance in the capacity and the angle. Coal removal with mechanical means has been difficult and inefficient, since the complexes are used here can vary their height only between .5 and .8 meters. Possibilities are being sought for obtaining complexes with dual telescoping columns, which would be distinguished by great movement in the support sections. Work has been done with firms in the Polish People's Republic on creating complexes with variability from 0.9 to 2.6 meters for thin strata and from 1.65 to 3.9 meters for mid-sized strata. Possibilities are being studied, with other firms, for single stratum removal of large strata (3.4 to 5.5 meters) at the Bobov Dol United mine, and by using this method the danger of endogenous fires would be decreased.

Together with the Czechoslovak Socialist Republic, solutions are being sought for the creation of a suitable mechanized complex for removal from small-capacity strata at the G. Dimitrov mine in Pernik.

With the assistance of more perfected complexes, it will be possible in the near future to raise the average output at a mechanized front to 800 to 1,000 tons per day, and the relative share of the mechanized output will reach 50 to 60 percent.

The type of mechanization used immediately after 9 September 1944 for the excavation of preparatory pits consisted of only a few digging machines. During the period from 1950 to 1960, we began the implementation of various types of loading machines, which helped even then to raise the technical-economic indicators of the preparatory work. The replacement of wooden support frameworks and heavy reinforced concrete segments with metal hoops began in 1961. And last year 63 percent of the preparatory sites were supported by such hoops.

The implementation of complex mining mechanization during 1965-66 required us to increase the speed of the preparatory excavations for mechanized fronts. In 1967 we began to obtain and implement combines with arrow-shaped working

organs, with the help of which the speed of excavating the holes has been increased two times. Mechanization of the loading of rock and coal accounted for 53.7 percent of the preparatory digging done in 1983, and combines accounted for only 26.5 percent. It is believed that the utilization of loading machinery and combines will increase in the coming years.

In the field of underground transportation, long and highly productive conveyor belts are being utilized even more. Small carts with a capacity of 2.8 cubic meters, which return without having to wait for the next one, have been put into operation. We have begun to obtain transportation systems with monorail diesel locomotives for transporting people and materials along the mines with various slopes.

Together with the technical progress in mining, preparatory work, and various transport methods, a number of auxiliary processes have been perfected and modernized. These include ventilation, water removal, services for the workers, personal production, etc.

The number of primary and auxiliary processes which are automated or are controlled and managed with the aid of computer technology has been increased.

The capacity of the first underground mines constructed after 9 September 1944 was small: from 150,000 to 300,000 tons per year. We are now building the Zdravets mine in the western Maritsa basin, with a capacity of 2 million tons per year, and the Bobov Dol United mine, with a capacity of 3.65 million tons per year. Problems associated with the acquisition of the Dobrudzha coal find, which is situated at a depth of 1,300 to 2,000 meters, are being studied, for significant reserves of black coal are concentrated here, and a part of this is coking coal.

Now again we are turning our attention to the processes of direct thermochemical processing of the coal. It is thought that including these processes in the modern power technology schemes for processing coal will offer great possibilities for raising the efficiency of the power output and for compensating for the growing deficit in organic fuel.

Great possibilities for effectively using low-quality coal are found in the combination of the coal gasification process with the use of the gas obtained for the production of electric energy at power aggregates, including gas and steam turbines. It has been established that suitable modern processes for coal gasification of our lignite basins are the methods of boiling the stratum under pressure and dust gasification. It can be expected that in the future it will be advisable to implement combined designs for the production of electricity with preparatory coal gasification.

Together with the production of electrical energy, we will obtain such chemical products as phenol, cresols, xylenols, raw materials for the production of aromatic hydrocarbons, gas for technology, etc., which are in short supply in our country.

Our nation does not have a lot of high-quality coal that would be suited for

liquefying. The greatest interest in this regard comes from the coal that can be turned into briquettes at the Maritsa Iztok complex and the coal in the Dobrudzha basin. From the research that has been conducted thus far, it has been established that the hydrogenization of lignite coal with 20 percent ash and the enriched coals from the Dobrudzha basin with ash from 9 to 10 percent have high indicators: 90 percent of them can be turned into liquid and gaseous products, and around 45 to 50 percent are suitable for the production of synthetic oil.

The new technological solutions in our coal industry will bring further improvement in its technical and economic indicators. On this basis, we can foresee that in the year 2000 the output of coal will grow two times and that Bulgaria will obtain from 65 to 70 million tons annually.

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BULGARIA

ECONOMIC USE OF ENERGY RESOURCES URGED

Sofia ENERGETIKA in Bulgarian No 9-10, 1984 pp 23-28

[Article by candidate of technical sciences, engineer Aleksandur Tsvetanski, of the Energetika Corporation: "For a Further Increase in the Efficiency of Using Energy Resources"]

[Text] The general consumption of energy is one of the reliable criteria for evaluating the degree of industrial development and the living standard of each country. According to this indicator, expressed in tons of conventional fuel per person year, our nation is among the most developed in the world. In 1980, it was 4.8 with a trend by 1985 and the year 2000 of reaching 6.2 and 8.5, respectively (in the USSR in 1980 it was 7.0, and the average for the world did not go above 2.0).

Of the energy resources needed for the development of the nation's economy, practically all liquid and gaseous fuels and high-quality coal are obtained through importation. Now that the years of cheap fuel are gone, the criteria for general and specific consumption of fuels must be more completely linked with the degree of efficiency in the use of energy resources, with the quantity of national product produced with them, as well as with the national income realized. According to these substantial indicators, the results here, however, lag behind the achievements of the advanced nations in a great number of fields in industry, agriculture, and the communal and private sector, where practically three-quarters of the fuels, electric energy, and thermal energy of the nation are consumed. Therefore, the problem of the economic outlay of all energy resources in recent years has been emphasized as strategic for our socioeconomic development. Thus now and in the future this will become the general direction in the development of the nation's fuel and energy complex, together with the rapid construction of atomic power plants and installation of heating systems and the maximal utilization of our local coal resources.

Already at the end of the last 5-year plan, under the leadership and the general coordination of the former Ministry of Energy, a national program for economizing on all types of energy resources was worked out and is now being successfully carried out. The results so far from its realization provide a basis for affirming that the general useful utilization of energy by 1985 will grow by 3 to 4 absolute percent, but it will still remain under the level of countries such as the GDR, the Hungarian People's Republic, the Czechoslovak

Socialist Republic, etc. Now it can be affirmed with certainty that the notion of energy and its efficient use has been seriously re-evaluated by managers, specialists, and labor collectives. Quite a bit of experience has been collected, scientific-research and experimental construction elaborations have been made at various stages, a number of devices, designs, and installations have been the subject of experiments. But the large and general problem of increasing the efficiency of utilization of energy still faces us, and it can be solved primarily with the rapid implementation of the achievements of scientific-technical progress, with new, nontraditional approaches in thinking, with the selection and propagation of technical solutions, with their use, with the broad and large-scale utilization of leading worldwide experience.

In the industrial rationalization of energy consumption, we must continue the following basic tendencies:

Decreasing the Direct Losses of Fuel and Energy Resources

Here we are dealing with the technological aspects of power supply and the comprehensive energy use of secondary energy resources. This is a direction which now and in the future can, with limited financial resources, help to realize, in relatively short periods and with slightly newer technical solutions, technologies, and materials, 25 to 30 percent of the savings expected by the year 2000. This is the basic task of the nation's scientific-technical potential, which is engaged in solving the problems of energy efficiency, especially the Promishlena Energetika Scientific Production Combine. With its repair and restoration, modernization, and engineering work, the combine has laid a solid foundation for organized activity in decreasing direct losses of fuel and energy in the various energy installations of industry, agriculture, and the communal and private sector.

In the condensation savings of industrial enterprises, we must rapidly extend the exchange of morally obsolete forms of condensation isolators. By now there have been developed, adopted, and regularly produced the most widespread types of these devices, the floating condensation isolators (70-75 percent of all types). Now facing us is the adoption of other forms: bimetal, thermodynamic, those floating with higher admission capacity and with partial drawing off of secondary steam. The savings expected is 10 to 15 percent of the primary energy resources, and a significant quantity of water, which must be processed chemically. This whole process must be completed no later than 1990-92. Even now we must begin work on reorganizing the open condensation systems by replacing them with closed ones, which will offer an additional savings of 8 to 12 percent in heating the condensation in the form of secondary steam with lower parameters. This reorganization must be carried out no later than 2005.

We must continue the use of all types of secondary energy resources (SER's) on a significantly larger scale and in a more comprehensive way. As a general principle, its use must precede from the resolution of the following tasks:

-- With the aid of constructional and operational measures, the quantity of SER's must be brought to the lowest possible economic minimum;

-- The utilization of SER's to the maximum possible degree must be done within the framework of the technological process itself, the so-called energy-technological use of the SER's. In this case there is complete coincidence between the time of formation and the consumption of the waste heat and its maximal use, connected with a direct decrease in the costs for the primary fuels;

-- The utilization of the SER's must be realized as much as possible within industrial enterprise itself;

-- Utilization of the SER's outside the industrial enterprise must be resorted to only when the first three possibilities have been exhausted.

Full utilization of the SER's has been beset by difficulties in the last two cases, which were evoked by a disparity in the time of production and consumption of the heat utilized. Thus in the future it will be unavoidable to impose the necessity of developing accumulators (water accumulators, or those based on the principle of phased transformation of certain salts), for short-term and long-term preservation of the heat. And in these two cases, the savings of energy resources will not be realized at the installation source of the waste heat, but at the place of use of that heat.

In principle, the problem of the maximal possible coincidence in time and quantity in receiving and consuming the waste heat is one of the central questions in the economical bases for the use of almost all types of SER's. The variety of SER's--concentrated (heat currents from hot fluids and solid bodies) and scattered (radiated heat in the form of radiation or convection)--which are in an approximately equal relationship to the energy potential, do not offer the possibility of unifying the technical solutions and, what is more, their accessories. According to energy equivalent, of the concentrated SER's the heat ones predominate (gases, water, and air heated to various degrees), chiefly in the middle temperature range. The potential for flammable SER's, however (flammable gases, solid or liquid wastes), is significant, chiefly in view of their insignificant use now.

Certain successes have been attained up to now in the use of SER heat at average temperatures (150-300 degrees Celsius), and partly at the high temperature level (over 500 degrees C). A range of cauldron utilizers, of flame and water heating construction, has been constructed for the production of steam and hot water, and certain of these are already being used in construction. With them, the efficiency factor of the furnaces has been increased by an average of 10-15 percent. They are designed primarily for use in the industrial furnaces of the glass and petrochemical industries, where the implementation process must be completed by 1995, with an annual effect of saving over 100,000 tons of liquid fuel.

It is advisable to use similar equipment for the utilization of heat coming from exhaust gases from powerful diesel aggregates. A not insignificant

portion of oil refining, metallurgic, and machine building furnaces must still seek and develop solutions of the energy-technological use of heat, where the energy efficiency could be 20 to 40 percent higher, in comparison with the use of waste heat outside the technological cycle, chiefly due to the more complete utilization of the annual average of SER's.

Coming up with these solutions is linked with more complex and extended reorganization, in most cases with an almost total change in the fuel and air system, and we foresee starting now to develop these for the special construction of high-temperature recuperators (with the use of ceramics and other new, fireproof materials); low temperature thermal exchange equipment, including the use of glass tubing, thermal capacities with an intermediate heat carrier, etc.; new types of burners and fuel systems, for which the fuel and air mixture would be warmed before hand; systems for automatic control of the joint work of the utilization installation and the technological aggregate, etc.

The energy-technological use of high-temperature and medium-temperature SER's can be expected to be complete sometime before 1995.

Significantly more complex are the problems related to low-temperature (under 150 degrees C) and much lower-temperature (under 50 degrees C) SER's. The potential quantities of these heat sources are huge. The sources of such heat include water from the cooling portions of thermoelectric power plants and atomic power plants, of electric plants at factories, water from various technological processes, geothermal and subthermal water (from clean to polluted and corrosion-active), gases and air, heated in technological, ventilation, and other production systems.

To this group of resources we must add the steam-air and gas-air mixtures, where the hidden heat from vaporization is a major energy resource. The technical solutions here are the most complex and expensive and require the application of new materials and technologies, very closely linked with the provision of a suitable year-round consumer. Implementation work has begun, but it is still at the beginning of the experimental stage. Great quantities of heat, however, must be developed in research and experimental construction work on a much larger scale in the following directions:

-- use of water from the cooling portions of electric power plants for raising vegetables, flowers, and aquaculture, as the possible solutions occur with and without the decrease in the vacuume in the condensers of the turbines, used as an additional peak heat source or thermal pumping installation. Potential possibilities exist in these directions for one condensation block to raise 800 to 1,000 decares of greenhouses with nontraditional heating systems (combined, subsoil, air, and piping);

-- development of a range of thermal exchange recuperators of the air/air, water/water, and water/air (gas) types for energy-technological or external energy use of waste heat. The recouping of heat, for example, from air used in ventilation systems at industrial and communal sites saves from 40 to 80 percent of the energy necessary for heating. Development of a part of these thermal exchangers has begun, now their range and application must be extended,

they must be organized for regular production and large-scale implementation at existing and new installations;

— the use of mixed heat exchangers of various constructions and with different functional relationship for utilizing the heat of steam and gas-air mixtures from drying installations, cauldrons and furnaces, which burn natural gas. The use, for example, of heat from only one drying cylinder at the Briquette Factory in the Maritsa Iztok complex leads to savings of 8.36 to 10.45 GJ/h (2 to 2.5 Gcal/h) under a form of water at a temperature from 60 to 65 degrees C. A mixed heat exchanger, placed after a cauldron with a capacity of 10 to 12 tons of steam per hour, raises the efficiency factor by 6 to 8 percent. The effects of industrial furnaces, working on natural gas, can be emphasized even more;

— the use of heat pump installations for raising the temperature level of the heat sources. The prospective electrification of the energy balance on account of increasing the electric energy produced by atomic power plants will make the implementation of such installations in various technological processes even more profitable. The heat pump installations will turn out to be especially efficient, when combined with the production of heat and cold, keeping in mind the significantly lengthened period of their utilization.

Using the low-potential SER's for a more significant contribution to savings will be practical after 1990, and completely mastering them will probably continue until after 2010.

The flammable SER's are also a significant source of energy. Most of the questions about using flammable gases produced in blast furnaces (blast furnace, coking, convertor gases) as fuel in the cauldrons of factory power plants have already been successfully resolved. Many of the problems, however, are linked to the use of burning gases produced by making ferrous alloys, the heating of aluminum, various gases from the chemical and oil refining industries, etc., in connection with their volatility, toxicity, the content of various harmful mixtures and metal. In this connection, we must plan for the development of special forms of utilizers, purifying equipment, installations for rendering the SER's harmless by using fire for the following use as heat, etc.

The solid flammable SER's, which in most cases are in the category of our industrial wastes, are little used for energy purposes. In the wood processing and cellulose-paper industries the bark is not used as a flammable waste these days. The first successful steps in creating special cauldrons with combined grate-firing hearths have been made. The complete resolution of this problem can be expected here by 1990-92. Before this period, we must solve the problems of the energy-technological use of hydrolizing lignin, a waste product from the production of fodder yeasts. These two types of flammable SER's alone have an annual potential of over 60,000 to 70,000 tons of conventional fuel.

In a number of technological processes in the textile, foodstuff, leather, and other industries, flammable SER's are also produced, and though their use for technological purposes is not advisable, burning them in principle is not

linked to the resolution of especially complex technological and construction problems.

Still unresolved now are problems related to the use of old automobile tires, elastic, plastic, and polyethylene wastes, wastes from hospitals, airfields, etc., for energy purposes. The energy equivalent of tires not suitable for other purposes and waste elastic alone is more than 30,000 to 40,000 tons of liquid fuel per year, without taking into account the huge deferred quantities. The classical methods of energy utilization of this group of waste products are not applicable. More modern solutions, which must be put to the test and applied, are pyrolysis, the technologies for obtaining liquid fuels, oils, soot, etc. This could be realized after 1990. Up to 10 to 15 percent of the elastic wastes could now replace fuels in cement furnaces for the production of Flemish bricks, using the dry method.

Similar to the flammable SER's, which require new technologies for their use, are the wastes from coal mining, oil refining, briquette remnants, coal with ash content over 65 to 70 percent, etc. Future technologies for them will probably include furnaces with a boiling stratum. Certain types of special revolving furnaces and cauldrons can be expected to be used after 1987-90. Great energy potential can also be expected from using the physical heat from highly heated products (coke, rolled metal, thermal processed details, etc.), from the compression of blast furnace gases (with gas, non-compression turbines), etc.

A number of new fields in the use of SER's, such as the reserves of waste energy under pressure or kinetic energy, braking energy of transportation means, cascade use of waste heat, etc., await practical resolution. The problems of using the SER's in the future must be seen more frequently not only as savings of energy with an especially great economic effect, but also as problems of technological perfection and increasing the productivity of the installations, as problems of waste-free technology, and preserving the environment.

Raising the efficiency factor of fuel systems is a direction with especially high energy efficiency. Together with the traditional regimented-technological adjustments, the tasks must be directed toward the selection of the optimal systems, at a given type of industrial installation, for regulating or control, including systems with microprocessor devices (chiefly for certain industrial furnaces).

Special attention must be paid to the unification of technical means at informational levels. It is necessary to develop a unified concept for the construction of automated systems and primarily for the fuel-air regimens of single-type cauldrons and industrial furnaces. From the implementation of such cauldrons and furnaces, we can expect savings in fuel of 2 to 3 percent for the industrial cauldrons, and 5 to 10 percent for industrial furnaces, together with a qualitative improvement in the regimens for energy supply.

Priority should be given now to starting work on automated regimens for cauldrons from the KM 2.5, 4, and 12 tons of steam per hour series, which

consume more than 50 percent of the liquid fuels in the fuel supply. The same applies to the greater part of the furnaces in the petrochemical industry, where there is practically no automation of the fuel processes.

The introduction of new systems in most cases will be linked with principal changes in the fuel systems, including the replacement of automated controls which are not applicable to regimentation.

A problem which must be solved soon is the adoption of apparatuses for quality control of the fuel process, which additionally must lead to more stable support of the efficiency factor at the optimal values.

Also needing additional elaboration are questions such as the improved organization of the fuel process over large furnace distances, improving the advanced preparation of the fuel, including the adoption of corresponding equipment, etc.

The resolution of these problems must come no later than 1995 to have an annual effect of over 400,000 tons of conventional fuel.

Heat insulation is a quite undervalued question for all sectors of the national economy. The potential possibilities in this field are comparable to the possibilities for heat and flammable SER's. At just one industrial furnace, for example, the radiated heat losses are almost equal to the losses from exhaust gases (up to 15 to 20 percent).

Many great losses exist as a result of insufficient thermal insulation in the residential sector, at production buildings, in heat and steam piping networks. Over 15 percent of all energy resources are used to heat the nation, and each degree C change in the temperature as a result of improved thermal insulation saves 5 to 6 percent of heating energy.

Thus, perfecting thermal protection constructions is one of the prospective directions for saving energy, whose development must be planned in the following directions:

- working out new materials and technologies for thermal insulation of industrial heat and steam piping networks;
- developing and adopting new insulation protection materials with great pretension, with ceramic filaments for industrial furnaces and for furnaces with little heat accumulation capacities, which work on a cyclical or periodical regimen;
- adopting new materials and technologies for thermal insulation of existing and new residential and communal buildings;
- rethinking architectural and constructive solutions for construction and glass installation of residential and industrial buildings.

The resolution of these problems requires a comprehensive approach and

coordination of work by many scientific organizations and production enterprises, in connection with the affirmation of new norms for thermal insulation in buildings.

The real effect from improvement in thermal insulation on a more significant scale can be practically expected after 1989-90.

Setting energy norms can also occupy a substantial space in the scientific-technical activity of the sufficient utilization of energy, as the following problems are solved:

- developing and affirming contemporary norms and allowances for the consumption of energy by various energy transformation installations, in correspondence with their level of contemporaneity, working regime, etc.;

- introducing devices for measuring the quantity of energy resources used (chiefly liquid fuel) and the quantity of thermal energy produced. On this basis, we can distribute the energy norms for heat sources and individual technological processes, excluding energy for heating. With this, we will create real preconditions for control, for keeping track of actual expenditure of energy resources, and stimulation of savings realized.

If the questions about the devices for measuring thermal energy, transferred by hot water and steam, can be considered resolved several years ago at the sites of production, the question of measuring the expenditure of liquid fuel (chiefly fuel oil) still remains open.

Heating for industrial, residential, and public buildings is another serious source of economizing on heat and electric energy. The measures applied up to now are obsolete, especially at industrial sites. The fundamental directions must be connected with:

- applying more modern systems for heating industrial buildings, which could avoid having great and unnecessary temperature variances according to various heights in the building;

- introducing local systems for controlling heating processes, taking into account the quantity of energy consumed. Accounting based on microprocessor systems must be gradually introduced for new construction from the residential building fund;

- decisive rationalization of ventilation (general and local) systems, utilizing the heat of exhaust air;

- new types of windows, systems for installing glass, and caulking to halt the infiltration of cold air.

The savings as a result of these measures could reach 20 to 30 percent, and practical realization could proceed by stages after 1987-88.

More efficient use of electrical energy clearly must be linked with its constant

increase in the energy balance. Up to now the developments have been limited to a few effective devices and systems, whose implementation is still limited to single cases or small series.

We must rapidly develop and implement systems for the control of electrical loads and capacities at industrial enterprises; restoration of semiconductor systems for electrical operation; perfection of a variety of electric transforming equipment in various technological processes; limiting the excess revolutions of turning mechanisms and machines; mass introduction of microprocessor technology in the control of electric consumption; more economic lighting bodies and systems for control of lighting; efficient accumulation systems for nighttime electric energy; efficient replacement of energy resources that are in short supply (liquid fuels, natural gas, steam, coke) by electric energy, and in certain cases in combination with heat pump installations; introduction of systems for control, automation and management of energy consumption at various levels; perfection of household electrical appliances.

Most of these problems are questions that face us today and will tomorrow, and expenditures on real savings must be oriented at least toward the reduction by half of the annual growth in electric consumption.

Implementation of Leading Technologies and Modernization of Existing Ones for the Production of Energy-Consuming Products

Tasks in this direction are connected with securing the necessary energy-transforming and energy-consuming equipment with high technical-economic indicators. Evaluations show that in this field the possibilities for saving energy are greatest and account for about 30 to 50 percent of the general economy expected for various fields in the future, up to the year 2000. But the capital investments and the size of work carried out are significant and more frequently have the character of new construction.

The resolution of problems in this regard will be carried out more slowly and most probably the results can be expected after 1990. Most characteristic for us in this regard are metallurgy, the chemical and oil refining industries, production of cement, paper, cellulose, etc.

A basic place in resolving these types of problems must be accorded the specialized institutes in the ministry's fields (in the choice of technological solutions) and the Ministry of Machine Building as the producer of new machinery. Pinning down these solutions under conditions that will offer the best norms and the most progressive allowances for the expenditure of energy resources is an obligatory condition for attaining high results.

Structural Changes in the Technologies for the Production and Nomenclature of the Production Generated

Questions here are linked mainly to the authority of the various ministries, corporations, and economic organizations. Of the expected savings by the year 2000, 10 to 30 percent belong to them (to ferrous metallurgy, around 30

percent; to nonferrous metallurgy, 10 percent; to wood processing and the cellulose-paper industry, 20 percent and so forth).

Efficient Selection and Replacement of Energy Carrier

In this regard, we must carry out serious work on the entire fuel-energy complex, directed toward:

-- efficient replacement of fuels in very short supply with those in less short supply, including the SER's. Especially important are those questions about the drying process in agriculture, the production of certain building materials, heating processes, etc., where the expenditure of some of the most expensive fuels is not justified;

-- a revaluation of the fuel bases of industrial enterprises and heating plants, with a view toward the transportation distances from the sites of the energy resources, especially at newly constructed sites.

The constantly growing consumption of energy and the higher requirements for protecting the environment call for the development of new energy technologies in agriculture. Agriculture must not be seen only as a production sector, but also as a way of life, where it is difficult to demarcate the industrial and private demands for energy. The intensive and extensive development of agriculture conditions the growing demand for energy for industrial needs. According to the data of the FAO, the relationship between the potential energy expended and received in agriculture is 1:2.5, with a tendency to reach 1:1 because of the growing use of energy in this field. Around 40 to 45 percent of all energy needs are direct expenditures for fuels and electric power, which must be streamlined in the following basic directions of bioenergy technologies:

-- adoption of agricultural wastes as fuel. We have begun serious work in this regard. The first models of cauldrons for such wastes have been developed and produced, as their range constantly expands. The energy potential of these wastes are equivalent to more than 1,000,000 tons of liquid fuel per year. Real results could be expected as early as 1986-90;

-- adoption of technologies and equipment for the processing of animal wastes into biogas and other secondary products. The start-up of a large biogas installation in Sofia Kray is coming. Besides the energy aspect (full or partial energy self-satisfaction at large animal husbandry farms), the problem here has a particular economical character. Still, the high prices of such installations and several unresolved technical and technological questions delay their mass implementation. It could be expected after 1988-90;

-- perfecting the processes of drying grain and fodder. Up to now this has been carried out with the most critical fuels. The technologies for using fuel from agricultural wastes, preparatory dehydration of fodder, perfecting the grain and hay dryers, etc., have good prospects. Most of the technical questions in this field have been resolved and the results can be expected after 1985-86;

-- obtaining alcohol products from biomass. The standard which is obtained from biomass could eventually be used for the production of thermal energy or in internal combustion engines (with a 20 percent addition to the gasoline);

-- use of solar energy for raising fruit and vegetable crops in greenhouses, for obtaining hot water for residential needs, for drying processes, etc.

The national significance of the problems of future streamlining of energy consumption in industry and agriculture requires more active coordination of efforts by the engineering-implementation organizations of the Energetika Corporation system, specialists from higher education institutions and the Bulgarian Academy of Sciences, and the specialized scientific and technological institutes of other departments in order to attain rapid implementation of achievements in scientific-technical progress. The possibilities for organizational and technical measures in achieving savings of energy are running low, and future large-scale savings of energy resources can come mainly as a result of well-organized, prepared, coordinated, and executed scientific and technical policies carried out on a national scale.

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BULGARIA

CEMENT INDUSTRY PROBLEMS SINGLED OUT

Sofia PLANOVO STOPANSTVO in Bulgarian No 10, 1984 pp 63-66

[Article by Todor Mladenov and Iliya Dodekov: "Problems in the Development of the Cement Industry"]

[Text] The cement industry is considered a heavy industry, a producer of means for production. In terms of its complexity and scale, it ranks immediately behind metallurgy, large-scale chemistry, power supply, and heavy machine building. Its scale and complexity are defined by its huge production aggregates, consumption of fuel and energy, complex chemical processes, and difficult production conditions; and these cause it to approach the other leading industrial fields. Figuratively speaking, the cement industry provides the bread for construction. Under the conditions of the tremendous scientific-technical revolution, cement is a basic product for mass construction. A number of unsuccessful experiments have been carried out with regard to replacing cement as a basic construction material, most especially in the construction of housing, but time has rebuffed all expectations and missed possibilities for the development of the cement industry in correspondence with the needs reflected at a given moment by being a inhibiting factor in construction production. The development of scientific-technical progress has not only contributed to the perfection of the technologies for making cement, but has also expanded its consumption and led to a constant growth in the demand for cement per capita.

It is noted in the Theses of the 12th Congress of the Bulgarian Communist Party that "The development of construction materials industries must be brought into correspondence with the requirements for the industrialization of construction production and with scientific-technical progress. They must more fully satisfy the needs of the population for construction and building materials of various sizes, assortments, and quality."* From this we see the need for increasing the production of cement, with the goal of satisfying the needs for industrialized construction production and of the populace, as well as the improvement of quality and broadening the assortment of types of cement.

"Theses of the 12th Congress of the Bulgarian Communist Party." Sofia: Partizdat, 1981, p 40.

At the end of the Fifth 5-Year Plan, 1970, the production of cement here had reached 3.6675 million tons. This represented 432 kilograms per capita, which demonstrated that our country lagged behind in comparison with a number of European countries.

During the Sixth 5-Year Plan, the production of cement developed at a comparatively low rate. An inhibiting factor during this period was the idea that cement could be replaced by metal, plastic, and glass, and that its rapid development was not mandatory. The line index for the production of cement during the years of the Sixth 5-Year Plan was as follows: 1971--100; 1972--100.8; 1973--109.9; 1974--102.9; 1975--101.4. At the end of the 5-year plan, the annual production grew by 18.8 percent in comparison with the final year of the Fifth 5-Year Plan, and the average annual growth barely reached 2.95 percent. No active policy of expanding production was carried out during this period. By the middle of the 5-year plan, only one new technological line for the production of cement was adopted and set in operation, at the V. Pik State Cement Plant in the village of Beli Izvor, Vratsa Okrug, with a capacity of 380,000 tons of production annually.

During the Seventh 5-Year Plan (1976-1980), more energetic activities were undertaken with regard to broadening the material-technical base for the production of cement. It was noted that the rates demonstrated in our country during the Sixth 5-Year Plan had caused it to lag significantly in the development of capacities for the production of cement and did not allow it to satisfy construction needs for this most important building material. This was a precondition for determining the significant assets for capital investment and the simultaneous initiation of expansion at two cement plants: the State Cement Plant in Devnya and the V. Pik State Cement Plant in the village of Beli Izvor, Vratsa Okrug. As a result of the great efforts during the second half of the 5-year plan, two new technological lines with a capacity of 1.16 million tons of annual production were put into operation at the State Cement Plant in Devnya, and one technological line was started at the V. Pik State Cement Plant, with a capacity of 550,000 tons annually. Following this course, the State Cement Plant in Devnya will become the largest cement plant in the country, with a capacity of over 2 million tons annually by the end of the 5-year plan. Starting up and mastering the capacities of the three new technological lines will permit production to be increased significantly, and this will allow for greater annual average growth, of 5.28 percent, which is close to twice as much as during the Sixth 5-Year Plan. Following this course, the cement production per capita in our country reached 605 kilograms in 1980. This kind of result allowed us to overtake such countries as Denmark, Norway, Poland, Turkey, the Hungarian People's Republic, Finland, the Federal Republic of Germany, Sweden, Yugoslavia, and others. Thus our country has advanced significantly and now satisfies the cement requirements to meet, in a fundamental way, the domestic demands for an expanded construction program.

Two new technological lines are being put into operation during this 5-year plan, with an annual production of 850,000 tons, by expanding the V. Kolarov State Cement Plant in Temelkovo. Cement production per capita will reach around 680 kilograms.

Despite the constant growth in production during various periods of the active construction season, there are several places in the country which experience a shortage of cement. This is due to the structural changes in the amount of capital investment, as well as structural changes in the use of cement.

Four methods for the production of clinker, the basic type of semifinished cement, are known and applied throughout the world: wet, semidry, dry, and semiwet. The wet method is the oldest and the material used for firing the clinker, middling slime, is placed in the furnace with 36-40 percent water content. This is the main reason for the high costs for fuel using this method, which consumes, according to the type of furnace, from 1,500 to 1,800 kilocalories per kilogram of clinker. Using the semidry method, the raw material is prepared in the form of flour, which before being placed in the furnace is granulated with a mixture of around 14 percent water. The semidry method is not widely used. The dry production method is characterized by the raw materials being put in the furnace in the form of a flour, with only 1 percent moisture, and the consumption of fuel is quite low, between 750 and 900 kilocalories per kilogram of clinker. This consumption is about half the amount used in the wet method.

Technical progress in the world's cement industry is directed most of all toward mass transition over to the dry method of production. This has been the progressive trend during the last 30 years, which has also been dictated by the developing energy crisis.

In the Bulgarian cement industry, because of a number of factors, the wet method has been chiefly developed as the main method, and at the end of the current 5-year plan it encompasses 57.7 percent of all production; the dry method is used for 34.2 percent, and the semidry for 8.3 percent. Due to the fact that our nation is poor in energy resources, and that most of the fuel is imported, this type of structure for the cement industry is not advantageous. With the present state of the wet method's high relative share in cement production, our country has fallen behind in comparison with almost all the socialist and other countries which have developed a cement industry. In many countries around the world, the dry method is used for 80-100 percent of production. In the German Democratic Republic, for instance, the dry method was used for producing 87 percent of the cement by the end of the 1970's, in the Hungarian People's Republic for around 74 percent, in the Czechoslovak Socialist Republic for around 70 percent, in Japan for 99 percent, and in the Federal Republic of Germany for 95 percent.

With this situation in the methods used for cement production here, the average consumption of fuel this year for each kilogram of clinker is around 1,360 kilocalories; in the Hungarian People's Republic it is 1,170 kilocalories; in the Czechoslovak Socialist Republic, 1,140 kilocalories; and in the Federal Republic of Germany, 843 kilocalories.

Much has been done in our country in the last 10 years to decrease the consumption of fuel on the path to technological improvement, to the efficient use of active supplements, to decreasing warm idle time, to improving the utilization of equipment, etc. While, for example, in 1977 the average

consumption of fuel was 1,526 kilocalories per kilogram of clinker, it has fallen this year to 1,360 kilocalories, as mentioned above. But in comparison with the other countries named above this consumption is quite high. This has an aggravating influence in three areas. First, a large quantity of fuel is consumed, and this fuel is imported with hard currency; second, as a result of the high prices for fuel and the high consumption, a high prime cost for the cement produced is maintained; third, the competitive ability of cement exported (although in small quantities, to be sure) on the international market is low, for the reasons mentioned above.

The expanded housing construction and the tremendous developments in technical progress reaffirm that during this 5-year plan the use of cement has continued to increase. According to a number of forecasts, the demand for cement, and for production too, will grow by 3 to 4 percent annually in the next few years. The adoption of the second technological line at the V. Kolarov State Cement Plant in Temelkovo is part of the expansion planned for the end of 1984 and the beginning of 1985. In 1986 we expect the start of the seventh technological line at the V. Pik State Cement Plant in the village of Beli Izvor, Vratsa Okrug. We see that work on building a new dry method plant in Dimitrovgrad is in the process of preliminary design study. The correlation between the production methods that exist here under the conditions of an acute energy crisis require us to work more energetically toward decreasing the consumption of fuel in the cement industry. The paths to attaining this goal are found mainly in taking decisive measures to change the production methods, that is, to speed up the construction of dry method plants. It is obvious that two major pluses in shifting from the wet to the dry method are a sharp drop in the natural consumption of fuel, which is very important for the situation now in terms of the energy crisis, and also a general decrease in the prime cost of production, which according to the current economic and price bases raises its profitability.

It is also necessary finally to elucidate the prospects for the current plants which use the wet method. Here we definitely have a question of whether the existing wet method plants can be totally or partially shifted to the semiwet method though the utilization of press filters and slime condensers, which are linked to lower consumption of capital investments.

The paths to decreasing the consumption of fuel can be sought in the utilization of secondary energy sources, such as waste automobile tires, waste synthetic materials, etc.

In contrast to certain European countries, which are rich in brown coal and are reorganizing their cement industry in order to use hard fuel, our country cannot count on such resources. Thus the reorganization must be conducted simultaneously with the realization of all possibilities, either for entire factories or for separate technological lines. This is the path to a decrease in the consumption of fuel and at the same time an increase in profitability for this industry, which is a very heavy one, from the operational point of view.

The development and reorganization of the cement industry is an important national economic task, which must be resolved with all possible speed, and with a view toward timely satisfaction of construction needs.

BULGARIA

DEVELOPMENT OF MACHINE TOOL INDUSTRY IN 1985 OUTLINED

Sofia IKONOMICHESKI ZHIVOT in Bulgarian 26 Dec 84 pp 1, 6, 7

[Article by Zlati Kolev, deputy minister of machine building: "Machine Building in 1985"]

[Text] The goals adopted and affirmed by the law of the Unified Plan for Socioeconomic Development and the budget for 1985 create the necessary conditions and preconditions for the execution of the party's strategy for greater satisfaction of the people's material and spiritual needs.

At the November Plenum of the Central Committee of the Bulgarian Communist Party, qualitatively new tasks in the area of planning and planned management of the national economy were stressed. With the help of the ideas developed by Comrade Todor Zhivkov, qualitatively new tasks are being posited for turning the unified plan into a powerful lever for the development of the scientific-technical revolution here, for turning it into a strategic document for a scientific-technical basis and the realization of the tasks and goals of development in the economic and social spheres.

During the anniversary year of 1984, as well as from the beginning of the 5-year period, machine building collectives have continued to fulfill successfully the plans of the 12th Party Congress. Generally speaking, in the first 4 years of the Eighth 5-Year Plan, machine building developed at stable and steady rates. We expect industrial production to grow by 40.9 percent, total profit to grow correspondingly by 24.4 percent, in accordance with the 19.7 percent growth foreseen in the 5-Year Plan, and social productivity will reach 9,659 leva, while exports will rise by 50 percent in comparison with 1980. There is no doubt that these trends will be maintained in this next year. The machine building field will continue to develop in accordance with the goal posited by the 12th Party Congress for ensuring technical rearmament, as well as its own material-technical base and the bases of others fields and activities. What is contained in the new plan?

We foresee the volume of production in 1985 increasing by more than 11.6 percent, total profit by 13.4 percent, social productivity by 6.4 percent, and the basic assets by 15.3 percent.

During the last year, 91.0 percent of the growth in pure production was secured by the growth in the social productivity of labor, and for the 5-Year Plan as a whole, 94.0 percent.

In drawing up the plan, the structural approach to the development of productivity was applied. Special attention was devoted to the rapid growth in those items in which our nation specializes and has won long-standing positions in the world market. Conditions have been created for bolstering the specialization of machine building within the framework of the Council for Economic Mutual Assistance in integration with other socialist countries and most of all with the Soviet Union. Natural and large indicators for economic organizations have been specified on this basis.

Depending on the rates of development, the domestic area structure of machine building can vary and be perfected. The relative share of computer technology grew from 18.2 percent in 1984 to 19.7 in 1985; devices and means for automation, from 2.8 to 3.1 percent; metal cutting machines, from 5.0 to 5.2 percent; heavy machine building, from 4.9 to 5.2 percent.

With the plan, the necessary conditions are being created for the development of priority productions, which will allow us in the near future to win new technological and marketing positions. In comparison with 1984, production will increase in the following ways: automated technological lines, by 19 percent; robots and manipulators, by 21 percent; software for automated systems, by 28 percent; processing centers, by 57.8 percent; highly productive lathes with central processing units, by 26 percent; uniquely heavy equipment for intensification purposes, by 36 percent; equipment for biotechnological processes, by 14 percent, etc.

In fulfilling the resolution of the Central Committee of the Bulgarian Communist Party, 12,500 computers will be produced; they will be primarily designated for instruction and work in high schools, youth clubs for scientific-technical creativity, and higher educational institutions.

At the same time, in fulfilling the program for raising the quality of production, the production of morally obsolete, outmoded, and inefficient products will be halted.

In 1985, greater proportionality in the various stages of machine building will be created, based on the further application and perfection of the multiplication approach.

With the assistance of the balanced method, maximum efforts will be applied to providing the latest items with castings, molds, electronic elements, and comprehensive fittings.

The most characteristic feature of development in 1985 in machine building is the aspiration in the first place to bring the achievements of science and technology to the tasks of rapid implementation. In refining the plan, special attention was paid to ensuring the resources and conditions for the fulfillment of goal-oriented programs for the strategic trends in scientific-technical progress.

With this plan, we foresee that in the next year we will resolve 1,500 tasks, as the high rates of renewing production are maintained. We will produce more than 2.1 million leva worth of new and improved products, and the level of renewal will reach 24 percent.

In fulfilling the resolution of the National Party Conference for Improving the Technical Level and Quality of Production, items and parameters are refined, and these must be attained in 1985. These items and parameters are in accordance with and reflect both the actualized program for improving quality and the plan for scientific progress.

What are the most important technical trends in the renewal of machine building production found in the plan for 1985?

In the field of metal cutting machines, the development of machines with central processing units, automated technological lines, perfected processing centers for building into flexible automated production systems, etc.

In the field of computer technology, minimemory devices on magnetic disks, professional microcomputers, systems for the automation of engineering work, systems for remote processing, etc.

In the field of hydraulics, implementation of new types of hydraulic elements and systems for transportation and agricultural machine building and for heavy machining building.

There are also great tasks foreseen in the technological field.

In the field of automation, the most significant tasks are:

--implementation of flexible automated production systems at the Sredets Factory for Electronic Machines for 32 types of rotational and prismatic-body details; and the Podem Factory in Gabrovo for the hydroplastic processing of gear wheels for electric hoists;

--robotizing the KL005 welding systems at the Sredets Factory for Electronic Machines, the 004 IZASISTEM at the Zarya Machine Building Plant in Pavlikeni, etc.;

--the systems for the automation of the installation processes in the production of electrotechnical items;

--systems for the automation of engineering work at the IZOT State Economic Trust, the economic combine at the STVZT, etc.;

--comprehensive systems for the automation of production and control.

Mass consumption commodities produced by machine building will increase significantly. With the plan, we foresee the further continuation of the trend in machine building for greater satisfaction of the people's needs for high-quality domestic appliances. In 1985, the plan should ensure a growth of 12 percent.

in comparison with 1984. A significant increase is foreseen in domestic durable goods at economic organizations.

The greater quantitative satisfaction on the domestic market of needs for complex domestic appliances, which was attained in the period of the 5-Year Plan we have just finished, posits the task of raising the technological level, the quality, and variety of commodity assortment. In 1985 we foresee the production of new, luxury commodities worth approximately 80 million leva. Renovation is planned for 13.8 percent. Regular production of modern models of domestic radio and television technology will start; new models of color televisions, from the Sofia and V. Turnovo series, portable stereo radios with cassette players from the Hi-Fi class, home studios with Hi-Fi cassette decks, etc., will be produced. Also foreseen is a broadening of the nomenclature of construction and furniture casings by introducing new styles and luxury models, rust-free vessels with bimetal bottoms, new models of sanitary armatures with ceramic packers, etc.

In the discussion of the projected plan for 1985, the Ministry of Production and Trade proposed the quantity of consumer commodities and defined the additional commodities which do not reach the domestic market according to the plan's figures. Possibilities were sought for greater utilization of existing capacities for obtaining from economic organizations, through the counterplans, additional commodities worth 90 million leva. There is the question first of all of the high quality and luxury items from the nomenclature for domestic radioelectronics and complex domestic appliances. Items foreseen for additional production must be at a high, contemporary level, at which the structure of the commodity assets for the field will be improved, and the relative share of the new and luxury commodities will rise in 1985.

In 1985, the material-technical base of machine building will continue to be built up and perfected. The development of the material-technical base depends on the correct execution of intensification policies, as does the growth in the productivity of labor, the resolution of many problems of a social nature, etc.

It is necessary for us to note that a new approach, conducting a goal-oriented competition, will be applied to the affirmation of capital investments. It will be organized under the leadership of the Bulgarian State Bank and will include the active participation of functional departments and economic organizations from the ministry. In order to encompass the development of machine building as a whole field, meetings will be held with the Ministry of Transportation, the Ministry of Production and Trade in consumer commodities, the Ministry of Construction and Village Systems, the Ministry of Energy Resources, the National Agroindustrial Union, and the Ministry for Chemical Industry, which will oversee and agree on the needs for capital investments.

The goal-oriented competition for capital investments posits serious requirements for the technical-economic foundation of the sites, for the loading of active capacities, for the economic efficiency of exports and the total coordination of the investment process.

A distinguishing feature of the new plan is that conditions and possibilities are created for the construction of small and middle-sized enterprises for machine building. In 1985 work will progress on the construction of 100 small and middle-sized enterprises. With this approach, and through these enterprises, we will fulfill the directives for constructing the capacities for creating an elemental base at both the first and second stage enterprises. A concrete program is being developed for starting up these enterprises in honor of the 13th Congress of the Bulgarian Communist Party.

The investment activity in 1985 must be conducted so as to fulfill the tasks for decreasing unfinished production to 82 percent. The problems of loading the construction capacities must be resolved, as the coefficient for exchange reaches 1.85 percent, and the coefficient for the utilization of regimen time 80.1 percent.

With the plan, we foresee introducing basic assets of around 900 million leva, which is a strenuous program for machine builders. We must note that 1985 is the start-up year for a number of important machine construction sites. Thus the Radomir Heavy Machine Building Plant will receive 100 million leva in basic funds, as it looks forward to the decisive start-up of its mechanical installation machines and equipment and the creation of a determined link between the preparatory and fitting capacities. At the Ruse Heavy Machine Building Plant, they are planning for the decisive start-up of the steel foundry workshop with a capacity of 20,000 tons and of the forge-press workshop, which will comprise capacities of over 60 million leva.

New, significant, basic assets in the field of computer technology are foreseen.

In the fulfillment of these great tasks, it is necessary to ensure in a timely manner all the necessary conditions and preconditions, such as the preparation of comprehensive start-up programs, timely supply of machines, equipment, cadres, etc.

The rapid development of foreign economic links will continue. The plan posits new and responsible tasks for economic and foreign trade organizations. Exports in 1985 are supposed to increase by approximately 13 percent, and to the Soviet Union alone by over 14 percent.

With the program for securing cadres in the plan for socioeconomic development in 1985, conditions and preconditions will be created for executing and maintaining the preparation and training of cadres from machine building in constant correspondence with the needs and requirements of production and management.

Around 105,000 people will pass through the various forms and courses of study.

Over 90,000 workers at 201 professional-educational centers will receive a secondary and subsequent profession. In 1985, over 8,500 workers from the secondary technical-vocational schools and the technical training academies, around 3,100 from the technical high schools, and over 2,000 young specialists with a higher education will begin work at institutes and enterprises.

These are the most important aspects which characterize the approach to working on the refinement of the plan for 1985. This has also included laying the foundation for putting into effect the directives and elaborations of Comrade Todor Zhivkov on the new approach to planning work and planned management of the national economy.

The plan for 1985 is realistic. It responds to the possibilities in this area, but it does not exhaust all the reserves. It opens up a broad field for extending the initiative of the workers' collectives for creating and executing counterplans.

The successful fulfillment of the great tasks which face machine building depends to a great extent on comprehensive and consistent application of the new economic approach and its mechanism. This condition means that we must always keep them in mind and must apply them in all spheres and activities. The directives for consistent and comprehensive application of the new economic mechanism at economic organizations and enterprises in the machine building field must be applied flexibly and with know-how; the same is true for specific regulations for small and middle-sized enterprises and other normative documents which fill out and make concrete the economic mechanism. And this means applying to the limit the principles of self-accounting and self-support, the perfection of the brigade organization of labor, remuneration and especially the piecework system, as the latest economic results are linked even more closely with the material reward.

With the plan for 1985 and with the successful fulfillment of the Eighth 5-Year Plan, favorable preconditions and conditions are created for solving a number of questions in the regional socioeconomic development of the country. Important problems are solved in connection with the employment of the population in certain okrugs. At the present time, around 430,000 workers and specialists are employed in this field, as generally about 3.8 percent of the nation's population is employed in machine building. There is not a single village system or city which has no machine building enterprise. As the basic bearer of technical progress, machine building gives rise to long-term trends in progressive changes in the structure of the work force, in the educational system, and in the training of those employed in material production. In the field now we employ around 13 percent of the specialists with a higher education, and 64.5 percent of those involved in industry. The number of specialists with a secondary and higher education is growing at the expense of those workers with primary or lower education.

In correspondence with the high goals and development of the nation's economy and the perfection of the structure of machine building production, posited by Comrade Todor Zhivkov at the November Plenum of the Central Committee of the Bulgarian Communist Party for the period up to 1990, and for certain strategic trends up to the year 2000, new tasks now face us.

Further development in machine building will be directed toward:

--increasing the production of items with which our nation has won long-lasting positions and recognition in international markets, such as computer technology,

communications technology, microprocessor devices and systems for certain production items, highly productive metal cutting machines, transport and warehouse technology, highly mobile operations, hydraulics, robots, and microprocessors;

--rapid development of production connected with winning new technologies and market positions, i.e., the production and export of items which are based on the top achievements of scientific-technical progress will be sharply increased, as they will for items of leading technology, principally new constructs and materials, such as flexible automated production systems, automated technological lines, automated technological modules, new items for microelectronics, machines and equipment for biotechnological processes, optical electronics and laser technology, powerful microcomputers which have broad application;

--expansion of specialization within the small and middle-sized enterprises will be carried out at a high technological level; highly productive and automated equipment for the production of electronic elements, precise details and bundles, high-strength and other specialized materials will be supplied. With the development of small and middle-sized enterprises, a number of socio-economic problems will be resolved in regard to the utilization of labor resources in various village systems and rayons.

The main direction in the structural policy of machine building will be the reorientation toward the productive approach, which is based on the contemporary product structure of production, which will ensure greater flexibility in the field's economics, will raise its adaptability to changing conditions of production and the realization of production.

Priority will be given to developing the production of highly productive, efficient, and competitive items of high quality, with high technical and operational parameters, at the same time as the production of morally obsolete and inefficient items will be limited and stopped.

During the period of the Ninth 5-Year Plan, subfields and productions will develop at very rapid rates; these will ensure the perfection of the material-technical base of scientific-technical progress, universal intensification and intellectualization in all fields and spheres of the national economy. The product nomenclature of machine building production will be directed toward items with low material and energy cost, which require advanced training and ensure flexible adaptation of production capacities to changing international and domestic conditions.

With a view toward achieving the general goal of universal intensification, we foresee a decisive improvement in the productivity of human labor, of asset attribution, and a more efficient utilization of raw and other materials and energy resources and the attainment of high social productivity of labor and growing efficiency of production.

The directions outlined for the development and perfection of the structure of Bulgarian machine building will raise it to the level of advanced machine building countries and will open up broad prospects and horizons for

international recognition of Bulgarian brands. The last year of the Eighth 5-Year Plan will be a year of active preparation for the 13th Congress of the Bulgarian Communist Party. With these new tasks of the plan, conditions will be created for the successful fulfillment of the 5-year plan. And now we must get ready for even greater conquests in the following plan, the ninth, which will be the plan of stormy development in the area of scientific-technical progress.

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CZECHOSLOVAKIA

PRICING, ECONOMIC INCENTIVES ROLE IN R&D

Prague MODERNI RIZENI in Czech No 11, 1984 pp 34-40

[Article by Eng Eva Mosnova, CSc, UML, Charles University, Prague: "The Role of Pricing and Economic Incentives in R&D"]

[Text] The Eighth CPCZ Central Committee Plenum stated that "the current management mechanism does not generate sufficient pressure, real hunger for or any significant economic stake in innovations in products or production programs or for increasing quality as ways to achieve high production efficiency." Further improvements in pricing and economic incentives can play an important role in enhancing the impact of the management system on accelerating the practical application of R&D.

Pricing and R&D

In the interest of providing incentives for the production of advanced technology and the accelerated replacement of obsolete products, the Set of Measures introduced a system of price incentives and penalties applicable to basic wholesale prices. Experiences in the implementation of this system, however, have shown that it is not very effective. For the most part, the system is being applied onesidedly, asymmetrically in the sense that price incentives are being applied excessively, even to simple changes in product mix or to simple innovations, while there is no noticeable application of pricing penalties. This situation has been contributed to above all by a disequilibrium between supply and demand on the capital asset market, as well as by the fact that consumers of production equipment can pay full price even for a technically obsolete piece of equipment because of their relatively easy access to financial resources.

Long experience indicates that the development of an innovative climate among producers of new technology and its extension to their customers is being held back by a price formation policy in which the prices of new equipment only passively reflect the evolution of production costs, even at times excessively high costs, and in some instances even the evolution of the costs of an individual producer. Such prices, which may be called "cost prices" or "producer prices," do not exert sufficient pressure on producers to control labor and material costs. They reflect the economic interest of the producer, but not necessarily that of the consumer. It therefore became

necessary to link these prices to so-called impact prices or consumer prices. These prices reflect the maximum allowable costs for the production of a new piece of equipment, i.e., a level of costs at which the new equipment will have an economic impact on the user. This economic impact consists of savings in labor per unit of production resulting from the use of new rather than old equipment. The value expression of these savings are increased profit margins per unit of production.

The concrete form of impact prices for new equipment contained in the Set of Measures are price limits that represent the upper limit on future prices of new equipment. This price limit acts as an instrument for enforcing efficiency principles in the preproduction stages in which decisions are made, for practical purposes, regarding both the technical and economic parameters of a new product. Cost limitations on technological innovations fulfill the same role. It is an important requirement that these price limits be derived from ratios based on prices on mature foreign markets.

The Eighth CPCZ Central Committee Plenum stated "...that we have not yet been successful to the requisite extent in expressing the connection between product prices and their technical-economic and operational characteristics, that is, their efficiency when in use. If the formation of wholesale prices does not take account of both socially necessary costs and the technical-economic characteristics of products, it is impossible for pricing policy to have an effective impact on the utilization of research and development."

In the interest of strengthening the economic incentives for the production and use of new technology, the Eighth CPCZ Central Committee Plenum mandated the planned utilization of graduated prices and dual pricing along with the broader application of comparisons with foreign price relations when forming the price of a new piece of equipment.

The function of graduated prices and dual prices is to resolve the conflict between high startup costs generated by the production of a new piece of equipment and the need to get it as rapidly as possible into the user sphere.

Graduated prices fulfill this role by allowing the initial wholesale price of a new product, which reflects the high startup costs in the initial phases of production, to decline gradually during the process of reaching full-scale production. This results in a gradual expansion in the use sphere for the new product.

Graduated prices, which represent a system of temporarily valid prices that continually decline, are used primarily in cases when the process of reaching full-scale production of a new product is relatively long, with the validity of each temporary price not to exceed 3 years.

In a dual price system each new product is assigned a dual price, a temporarily higher price for the producer and a lower price for the consumer. The function of the price established for the producer is to offset the higher costs associated with the startup of production of the new product, while

the function of the prices established for the consumer is to provide an economic incentive for the rapid introduction of the new product.

Put another way, until a producer reaches full mass production and can therefore reduce the manufacturing costs of a new product, a dual price exists of, say, 100 for the producer and 50 for the consumer. In conjunction with this, the producer will set up a program for the gradual reduction of the wholesale price in specific years; such a program might reduce the price from 100 in the first year to 75 in year 2, to 65 in year 3, 55 in year 4, and 50 in year 5. This means that the cost price in year 5 would have declined to equal the impact price. The difference between the price for the producer and the price for the customer is covered by the state budget.

Because the system of dual prices depends on the use of price subsidies it is used only in selected instances. These are confined to the most advanced products, the rapid introduction of which in many production sectors is of particular social importance, either because they will make possible substantial labor and/or material savings or because they will make the products of a given sector more marketable abroad.

In practice, beginning on 1 January 1984 a system of dual prices has been applicable to advanced microelectronic components, for which the wholesale price will decline over the next 5 years by an average of 50 percent. The MHB 4116 microprocessor is a good example. In 1983 its wholesale price was Kcs 450, but a customer could purchase one as of 1 January 1984 for Kcs 40.

A dual price system, in conjunction with price subsidies as an instrument of financial policy, thereby makes it possible on the one hand actively to facilitate the rapid assimilation of R&D results in the user sphere of public production, and on the other hand effectively to control the startup of new products and the planned reduction of costs in the initiating sectors of public production.

The creation of economic pressure on innovational activity in production organizations is directly related to the gradual objectivization of wholesale prices. An inherent component of this process of objectivization is improving the compatibility between domestic and foreign prices. In conjunction with this we are gradually instituting prices for imported fuel and power resources, raw materials and materials that reflect the actual development of the acquisition costs of these imports, with the caveat that the results of changes in these prices cannot be mechanically incorporated into the price of the related products. This will generate the requisite pressure for the more sophisticated processing of fuel, power, and raw material inputs. On the other hand, a trend is developing in which the price levels of finished goods designated for export are moving toward foreign export price levels, i.e., the world prices for these products. This is also the objective of the experimental verification of measures to increase the efficiency of foreign economic relations.

Economic Incentives and R&D

The accelerated practical implementation of R&D is to a large extent dependent on the further improvement of the system of economic incentives. This is a matter of tying both types of economic incentives--collective (enterprise) and personal economic incentives--as closely as possible to efficiency as a criterion for evaluating the economic performance of production organizations.

The Eighth CPCZ Central Committee Plenum stated that "in addition to improving the content of the plan it is essential to improve the quality of the criteria for evaluating the efficiency of enterprise work." Using efficiency as a criterion means that production organizations will be evaluated and offered incentives based on the social utility and efficiency (cost effectiveness) of their production.

The social utility of production is in no way indicated by direct, plan-mandated performance, such as production volume, but by final performance, which is expressed by the degree to which the output that was produced satisfied the requirements of domestic and foreign customers.

There is no doubt that the objective of qualitatively and quantitatively satisfying those requirements that reflect the active input of customers to the production process necessarily orients the producer--provided that it is also tied to economic incentives--toward the more conscientious development of technical and product innovations. The consistent application of *khozraschot*, therefore, represents an important step toward increasing economic pressure on innovational activity in production organizations.

Currently production organizations are realizing their production not when it is actually sold, but when it is delivered to the warehouse. A change in this practice is being considered that would consist of realizing production upon receipt of payment for goods in the bank account of the supplier. This obviously is a change of a very basic sort which will have an impact on credit techniques, contract payments, invoicing and accounting, and which will seriously affect economic organizations in periods of slow sales. For practical purposes it will mean that production organizations will have to set up economic incentive funds, i.e., primarily a development fund and incentive wage fund, solely from revenues realized through sales of their products both at home and abroad.

In conjunction with the need to increase economic pressure on the innovational activity of production organizations, the issue is currently being discussed of whether final economic results, which are supposed to determine the formation of the incentive fund, can be set for a production organization in the form of a binding state plan indicator, or whether they should be set by the production organization itself in accordance with centrally established long-term regulations and norms.

Experience indicates that the designation of binding plan indicators that will be decisive in forming the economic incentive fund results in attempts

on the part of production organizations to obtain the lowest possible level for these indicators. In addition, indicators of this kind weaken the interest of an organization in long-range development by restricting its economic decisionmaking to the context of the planning period. If, moreover, the indicators are formed by the index method, they lose the ability to take account of qualitative changes in production brought about by R&D. Numerous economists are therefore proposing that the formation of the incentive fund for production organizations be tied to the actual results of its activities, provided that the organization fulfill the specific targets set for it by the state plan.

R&D performance is influenced by the system not only of enterprise, but also of personal economic incentives. The impact contributed by R&D is different at each workplace. For this reason, work collectives and individuals should be given the greatest possible incentives to achieve high-quality work results, in the form of higher values added to fuels, power, propellants, raw materials and materials, greater capital asset and inventory utilization, improved product quality, etc. In this context, the proper orientation of incentive wages, primarily bonuses and premiums, is very important.

The documents of the Eighth CPCZ Central Committee Plenum contain the following statements in this regard: "Improving the management system requires certain modifications in the area of economic incentives. This is a matter of assuring that the public interest in accelerated R&D as the main path to improved quality and efficiency be implemented in practice in the context of state plan fulfillment and the overall incentive system. This in turn requires the broader utilization of incentive wages and the tying of bonuses and premiums to final performance. The established criteria must efficiently motivate workers at enterprises to apply R&D results more rapidly."

Tying incentive wages to final performance assumes that the incentive wage fund that is formed will be distributed based on final work results that are specified for every collective and individual within the context of internal enterprise khozraschot. In conjunction with this, principle testing is under way of the brigade form of organization and work compensation. In this system, a brigade constitutes the basic element of internal enterprise khozraschot.

The application of the results of R&D requires that the importance of the preproduction stages be fully realized. This is because the effectiveness of development workers, designers, assemblers and technologists is the chief determinant of the performance, operational reliability and technical sophistication of new products, machines, equipment and structures, measured in terms of their requirements for labor, materials and energy during both their construction and their use. The fact that the employees of the preproduction stages exert a decisive influence on the pace of R&D progress and investment efficiency makes it essential to improve the economic incentives tied to the results of their work. This is the purpose of a request to enhance the active role of the incentive components of the wages of these employees so that they may be awarded individually—depending on their

performance—with higher basic wages and substantially higher bonuses for the successful and timely resolution and application of R&D tasks (at a state-of-the-art level).

In conjunction with this request the Federal Ministry of Labor and Social Affairs approved, in July 1983, guidelines for improving personal economic incentives for speeding up R&D efforts which were comprised of measures to improve the efficiency of economic incentives for employees of the preproduction stages. These guidelines apply to organizations which were applying regulations related to the testing of measures to speed up R&D progress, and attach top priority to increasing the efficiency of the incentive components of wages.

The guidelines provide that creative collectives and individuals be awarded bonuses for the successful completion and application of selected tasks of the R&D plan. These bonuses will replace the regular quarterly bonuses which are the rule now. The basic principle is that the amount of the bonuses will not be tied in any way to production plan fulfillment, but to the final results of work, measured by the achievement of the technical-economic parameters established for the resolution and implementation of each given task.

Exceptionally sophisticated and rapidly implemented solutions to important tasks of the R&D plan will be recognized with exceptionally high bonuses. In cases where there is a demonstrably significant economic impact from the resolution of a particular task, the sectoral ministers may award a special bonus in the amount of Kcs 5-50,000 for a given task and employee.

Research on the pay scales within groups of technical-managerial employees that has been conducted in recent years has shown that the earnings of assemblers, designers and technologists are often lower than those of managers, standard setters, etc. In the interest of improving this situation measures have been taken according to which it is possible to increase basic pay for preproduction stage employees by 10 percent above the upper limit of the pay range and to award personal payments, including exceptional personal awards of up to Kcs 7,500 monthly, to leading experts who have made exceptional contributions to increasing the technical sophistication of products.

For senior managerial employees, one of the criteria for the awarding of annual bonuses will be the aggregate economic contribution of the R&D tasks that have been completed and implemented.

9276

CSO: 2400/178

CZECHOSLOVAKIA

INNOVATORS DEVELOP PROM/EPROM MEMORY PROGRAMMING

Prague TECHNICKY TYDENIK in Czech No 45, 1984 p 5

[Text] With advancing electronization there is an increasing need for programming of PROM and EPROM memories, the assortment of which is rapidly expanding. The number of work facilities at which programmers are becoming indispensable is also growing, so that these devices can no longer be considered as a superfluous luxury more suitable for research institutes as part of developmental systems. We must also keep in mind facilities engaged in the maintenance of electric systems. Yet, there is no inexpensive, easily operated, all-purpose programmer on our market.

Eng Karel Svacina and Eng Jan Petrik of the Vitkovice Construction Enterprises are the authors of a topical device bearing the designation Programmer of PROM and EPROM Memories, on the basis of which they have devised two versions of these devices in great demand. The administrator of Improvement Suggestion No 2/84, which is the version for SAPI 1 [systems for automated acquisition of information 1] microcomputers, was Tesla Elstroj Prague, and the administrator of improvement Suggestion No 499/83, the version for MVS 800 [microprocessor developmental system 800], was Tesla Roznov pod Radhost. The components for building one programming device come to about Kcs 1,500 and are generally available in our country, while the programmers are of a high technical level.

The device can be used to program all domestic PROM memories, and also domestic, imported and EPROM memories currently under development in the CSSR, up to a capacity of 32,000 bits. Thanks to their all-purpose design, the devices can be expanded to program memories with an even higher capacity as well as single-chip microcomputers by simply mounting the corresponding socket, plugging in a short-circuiting connector and completing the operating routine.

Simple and easy operation is provided by connecting the programmer as a peripheral unit to a microcomputer that takes up four addresses. In selecting the control microcomputer it was decided to use the SAPI 1 microcomputer

modular assembly most widely used and least expensive in CSSR. Actually, the programmer can be connected to any random computer with an MB 8080 type microprocessor (it is suited for connection to the MVS 800 system of Tesla Kolin).

The programmer is made up of domestic parts connected on two plates with bilateral printed circuits. Structurally it is divided into the PCM-SP logic plate, which is inserted into the microcomputer casing, and an independent unit, the programmer, with dimensions of 215 x 210 x 26 mm, which is connected to the logic plate by a short cable. The programmer unit contains program-controlled switches for feed and programming voltages, a short-circuiting connector for EPROM-type selection and sockets for plugging in program voltages.

The device works in four modes. In the Test mode it carries out program testing of logic, switches, and feed voltages with error print-out. If no error is detected, the mode ends by printing out a list of memories which can be programmed.

In the Compare mode it compares the contents of ROM memory with the contents of the specified data zone in the microcomputer's memory and prints out the detected differences. In the Read mode it transfers the ROM memory contents into the selected zone of the microcomputer's RAM memory.

However, of key importance is the programming mode where data from the microcomputer's memory are entered into the ROM memory after, however, first checking whether the ROM memory is empty. If it is not, the suitability of data for programming is tested. The program also controls the operator's performance by prompting texts on the display and controls erroneous inputs and operations, e.g., plugging in an unsuitable EPROM selection connector.

The software takes up less than 2 kilobytes of memory, can be incorporated directly into the system's monitor or be run as a usable program. It can be stored in ROM memory, on perforated tape or on a tape recorder cassette.

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The programmer fills a severe gap in peripheral devices and has all the prerequisites for application in all facilities engaged in applied electronics.

8204

CS0: 2400/177

CZECHOSLOVAKIA

ATTITUDE CHANGES NECESSARY FOR SUCCESSFUL INTENSIFICATION

Prague RUDE PRAVO in Czech 4 Jan 85 p 4

[Article by Antonin Chyba, Economic Institute of the Czechoslovak Academy of Sciences: "Practice Is Decisive"]

[Text] Even though the 12th CPCZ Central Committee Plenum on the state and economic plan for 1985 did not develop in detail the idea of the inescapable need for changes in the economic thinking of the key managers at all levels and that of workers in various sectors of our national economy, these necessary changes make up one of the prerequisites for successful intensification of efforts in our economy.

For too long a time, economic thought has moved on worn-out wheels (in keeping with the predominating forms and methods of economic growth) and has taken the comfortable, well-traveled paths. This was within the framework of ideas which earlier corresponded to the objective demands of development, but now not only do not meet the needs of the current conditions, but are more and more coming into conflict with them.

We recognize that this is not just our domestic problem and in one form or another we encounter it in other fraternal countries which are similarly striving to intensify their national economy, just as we are. For example, Comrade Yuriy Andropov addressed this question in a study on the 100th anniversary of the death of Karl Marx: "The people who carried out the socialist revolution must still take a long time to gain mastery of their new position as the supreme and unlimited possessor of all the riches of society, to master it economically and, if you will, psychologically and to create a collective consciousness and behavior. Indeed, a person is educated as a socialist only when he is not indifferent not just to his own success at work, prosperity, and authority, but also to that of his coworkers, the work collective, the interests of the entire country, and those of the world's workers."

It is also no accident that theoretical studies and the statements by leaders of several other fraternal countries point out the fact that even under conditions of socialism, in economic thinking there is a general tendency toward lagging social consciousness of the common welfare. This is also true of economic thinking about the development of material conditions of society. Even though one cannot dispute the active role of economic thinking, which is

continually growing, economic thinking as a whole remains a reflection of the economic practices which predominated until recently.

It would probably have been difficult to achieve any more substantial progress in our current intensification efforts if we had not considered this factor and had not tried to influence economic thinking, especially the economic thinking of key personnel, in the spirit of the needs of the current situation and the spirit of the demands of building a mature socialist society.

We can still meet up with managers who manage "their" enterprises according to the so-called pure economic thinking. For them, the only viewpoint is that of "their" plants. They know, pursue, and thoroughly apply only the interests of "their" enterprises, which means narrowly understood group interests. Their reputation is usually good because they "know how" to find loopholes in the centrally established economic directives; to achieve reductions in the planned goals; to find advantages and possibilities in investments, raw materials, resources, etc. In the plants, they are often considered capable just because they "protected" bonuses and the plant was assured an honorable place at the top of the ladder among their economic production units, the branch of industry, etc.

These and similar points of view and practical approaches are not only one of the classic cases of obsolete economic thinking; they are a very harmful phenomenon which, just as equally antiquated approaches to rewards, suppresses people's attempts to achieve higher performance and destroys interest in high-quality and economically efficient production and interest in applying research and development results in production. Of course, serious deficiencies in management and the organization of the work process, wasting materials and particularly spiritual values, also have the same consequences.

The qualitatively new tasks in the field of economic policy therefore place qualitatively new tasks and requirements on political educational work as well, with economic propaganda occupying the primary spot. It is no accident that the party, in carrying out the recommendations of the 16th CPCZ Congress, starts with the fact that economics and education are the main areas in which it is necessary to develop socialist society and that the results achieved in these two areas of society affect each other.

The basic idea of improving the national economic mechanism and orientation toward the utilization of economic categories and economic stimuli consists of bringing the political interests of the socialist society into harmony with the actual economic interests of the work collectives, both in research and in the field of production. It is to make what is advantageous for the individual also beneficial for society, of course by utilizing all forms of initiative for the workers and the development of higher forms of initiatives corresponding to the qualitatively new conditions and needs.

It would be wrong to suppose that such forms of worker initiative as, for example, socialist competition and brigades of socialist labor are already communist forms of labor or at least forms in which the communist nature of labor predominates, or that this nature of communist morality is part of the makeup of all workers who take part in these forms of labor initiatives. For

the forms of initiative for the everyday labor of the majority of workers competing in collectives, for a long time yet to come the basic stimulating element will be material rewards for socially desirable results. All attempts at underrating this fact have contributed to a decisive degree, along with management deficiencies, to formalism in the development of work initiatives and to a failure to exploit existing reserves for increasing the efficiency and quality of production. Moreover, they have led to concealment of the fact that individual groups of workers make different contributions to the formation of the common wealth. It is well known that even today some workers are not carrying out even their more basic responsibilities without this substantially being reflected in their rewards, which is today the basic stimulus for economic development. On the other hand, attempts at maximizing material incentives and separating them from the existing moral incentives would likewise lead to a reinforcement of leftover values, as in the form of the attempt at getting the most rewards out of society without appropriate work performance.

It is therefore one of the main goals of economic policy to bring the organization of competition and various forms of work initiative into harmony with the mechanism for rewarding work, particularly with the material value placed on results achieved. Practical experience confirms daily that without thoroughly working out the principle of material rewards to support fulfillment of the efficiency indicators, quality of production, and the productivity of labor and support of scientific-technical development, it is not possible to expect a more significant informal participation of the workers in discovering and utilizing existing reserves for intensive economic growth.

The problem of economic awareness is currently connected with all substantial aspects of the party's economy policy. Without basic changes in the economic thinking of workers, especially without the essential changes in the economic thinking of key personnel, it would not be possible to fulfill the tasks formulated at the 16th CPCZ Congress and worked up in concrete form at the Eighth CPCZ Central Committee Plenum.

It is therefore necessary to change today's mass competition, which corresponds to a certain status of economic consciousness and in particular to a certain level of economic practice, in all areas, in all branches, and in all forms to an appropriate quality. In order to achieve its results, which are efficiency, productivity of labor, and high quality, the change must represent a measurable amount of savings, higher outputs, and an increased proportion of products at the level of world standards at every worksite. It must be exactly in the spirit of the speech by Comrade Husak, secretary general of the CPCZ Central Committee, at the 10th All-Union Congress: "More than ever before, it is true that the struggle for further development of the economy, for higher levels of economizing, increased productivity of labor, and the application and mastering of new technology must become an affair of all workers, entire work collectives, the working class, cooperative farmers, and the intelligensia. It is a matter of everywhere accounting for each koruna spent, economizing well with every ton of material and feed, with every kilowatt, with every machine, with every hectare of agricultural land, and with every working hour. We cannot allow any waste, megalomania, or below-average work. We must increase efforts to make people understand these requirements properly and take them on as their

own. It is not enough just to give them lip service. It is necessary everywhere to see to it that they are decisively brought to life without any procrastination. We must place even greater demands on political, organizational, and ideological educational work. It is a matter of the broadest levels of workers correctly understanding the new conditions, the reasons for them, and the tasks and departure points arising from them, and mainly to have them actively join in to carry them out."

The task of economic propaganda is even more demanding today. We really cannot say that we do not still have considerable reserves in this area as well. One must also bear in mind the fact that mastering the ideological aspects of the problems of the scientific-technical revolution is not just a matter of mass communication and propagandistic literature, as it might appear to the superficial observer, but is rather a matter of party organization, especially the basic party organizations. At the same time, the problems of application of scientific-technical information to production cannot be resolved within the political educational process just on a general or purely theoretical level. If it is to have practical results and if it is to speed up the process of using the results of science and technology in production, then it is necessary to take the viewpoint of dealing with the actual problems of one worksite or another, the solutions to which fall within the authority of the appropriate agencies and organizations.

These are interconnected matters; the more we increase efforts at intensification in our national economy as an organic whole, the more important and significant is the ideological work of the party, its political and ideological activities, and ideological educational work with the masses. It is a matter of making all workers aware that the propagation of intensification today represents the key political question. They must also see and constantly be aware of the connection between what we are attempting to do in our national economy and the development of international relations between socialist and capitalist countries, which have grown unusually to a global, worldwide scale.

6285

CSO: 2400/193

CZECHOSLOVAKIA

SANCTIONS AGAINST EXCESS FARM PRODUCTION ADOPTED

AU291822 Prague ZEMEDLSKE NOVINY in Czech 24 Jan 85 p 3

[Article by Eng Oldrich Zavodny, candidate of sciences, from the Federal Ministry of Agriculture and Food: "Exacting Targets of the 1985 Plan"]

[Excerpts] The production of some animal products in 1984 in excess of the plan generated additional income for agricultural enterprises but, from the social viewpoint, it was not efficient. That is why some economic measures are being adopted in 1985 that should help to bring about greater harmony between the production of animal products and society's need for these products as expressed in the plans of industrial and trade procurement organizations.

The measures concern exclusively animal production and do not weaken in any way the enterprises' current incentives to achieve further dynamic and priority development of plant production.

However, they will affect agricultural enterprises whose animal production in terms of consumption of concentrated feed is more intensive than the planned consumption limit. An enterprise that exceeds the planned limit of grain consumption will forfeit its claim to bonuses for both planned and unplanned increases in marketable animal production. The newly introduced measure will not, however, penalize effective intensification of animal production, that is, if an enterprise increases its production of animal products (except for poultry and eggs) without exceeding its total planned consumption of grain. The retaining of the claim to production increment bonuses in such cases promotes intensification.

Another regulatory measure will affect enterprises producing poultry for slaughter and eggs in excess of the plan. The procurement price obtained by an enterprise for poultry for slaughter and eggs produced in excess of the plan, or in excess of contracts, will be 20 percent below the regular procurement price and the enterprise will also not be able to claim production increment bonuses for this production. It is self-evident that the reduced procurement price will make production in excess of the plan economically disadvantageous for the enterprise. Only production that exceeds 102 percent of the plan (contract) will be regarded as being in excess of the plan, or contract. The aforementioned measures will affect the creation of resources in

agricultural enterprises and, ultimately, enterprise and personal monetary incentive funds. In the wake of these measures it is up to the managements of agricultural enterprises to modify also the intra-enterprise regulations governing employees' monetary incentives.

For the aforementioned measures to be effective and serve for their purpose well, it will be essential to responsibly set in the plan those indicators to which the measures are linked, and not to permit any unjustified changes of these indicators in the course of the year. Here, too, agricultural administrations must play their managerial role. The plan must become a true instrument of management.

[Words indistinct], has created scope for the enterprises' economic conduct and decisions. It is in this spirit [words indistinct] into effect in 1985 have also been drafted. They are being implemented in the spirit of the 11th Session of the CPCZ Central Committee and, at the same time, live up to one of the conclusions of the 12th session of the CPCZ Central Committee: "To deepen the intensification and efficiency of social production and ensure its harmony with the marketing needs."

CSO: 2400/247

GERMAN DEMOCRATIC REPUBLIC

NEW TECHNOLOGIES DEVELOPED TO PROCESS INDUSTRIAL BYPRODUCTS

East Berlin NATIONAL-ZEITUNG in German 20/21 Oct 84 p 5

[Article: "Raw Materials from Films, Ashes and Lye --Byproducts Not to be Dumped Without Control; Conceptual Work for Development of New Reserves"]

[Text] In the GDR, about 90 to 95 million tons of industrial byproducts accrue every year, including some 2.3 million tons of traditional secondary raw materials. As told by the deputy minister for materials management, Helmut Schmidt, the work of developing these raw material sources is aimed at recycling about 30 million tons of these waste products in 1985.

The presently unusable byproducts of industry and agriculture as potential sources of raw material are the object of analytical and conceptual work in order to prepare long-term scientific technical measures necessary for their collection and recycling. At the same time, technologies are being developed which lessen or even eliminate the occurrence of byproducts. "In this context I would like to point out that the still existing practice of uncontrolled dumping of secondary raw materials, including byproducts, will no longer be tolerated," the minister stated.

Under present laws, both unarmful removal and dumping of presently unusable byproducts now require permission by the authorities of the secondary raw material management sector of the district councils.

Helmut Schmidt reported that the state plan of Science and Technology in the GDR contains every year 100 to 130 tasks for more comprehensive use of byproducts. In addition, there are about as many subjects covered in the combines' science and technology planning. Scientists developed solutions to process mixed and contaminated thermoplastic scraps, to retrieve mercury from films and fixing liquid, and to extract iron concentrate from power station ashes, precious metals from scrap metal, and tin from dump sands. For some time now, the economy also has been supplied with valuable raw materials through the chemical conversion of magnesium chloride solution which occurs in potash production, into magnesium oxide. Sodium sulfate is extracted from the spinning baths of viscose fiber production, manganic sulfate from maganiferous sludge.

A number of important byproducts which at present cannot be recycled because of unsolved procedural problems, are taken to separate storage areas. Here they are stored until appropriate procedures have been developed and the necessary processing installations have been constructed. For example, this holds true for the red mud which accrues in the production of alumina, the bleaching earth of the oil and margarine industry, and asphalt.

According to the minister, the raw material reserves that must be even better utilized include used solvents, galvanic mud, acids, lyes, oily mud, drilling emulsions, used antifreeze water mixtures, and wood scraps. "Although they only occur in small amounts, they add up to a considerable quantity from an economic point of view," Helmut Schmidt pointed out. "Centralized reprocessing would be ineffective because of high transportation costs. It is therefore important that the centrally and locally managed combines, factories and installations, in cooperation with state authorities, utilize the numerous and varied possibilities of regional efficient development."

9917

CSO: 2300/202

GERMAN DEMOCRATIC REPUBLIC

WATERWORKS' GLASS PIPE SUBSTITUTION ELIMINATES CORROSION

East Berlin WASSERWIRTSCHAFT-WASSERTECHNIK in German No 8, Nov 84 pp 174-6

[Article by Herrmann Buchmueller and Dr Erich Wilinski, degreed engineers and members of the Chamber of Technology; contributed by the VEB Water Engineering and Water Management Planning Combine, Halle, and the VEB Water Supply and Waste Water Treatment, Berlin: "Results of Use of Glass Pipes in Water Supply Systems"]

[Text] In accordance with national economic requirements in the building of water management plants which call for increased use of domestic raw materials and other materials, testing of "RASOTHERM" glass pipes for use in water management began in 1982, and its purpose was to determine whether or not glass pipes could be used in water management plants as a substitute for plastic, nonferrous metal and stainless steel pipes.

Intermediate Results

Economic, technical and organizational activities were coordinated by a central staff in accordance with the job manager principle. Based on a "leadership concept for preparation and organization of experiments on the subject of broad application of glass pipes in water management," these activities included:

- testing of experimental pipe runs in five water management projects, two of which were underground connecting lines
- laboratory experiments at the Institute for Civil Engineering, Building Construction and Structural Engineering of the Construction Academy of the GDR to determine unknown material characteristics and to formulate basic design principles for underground glass pipes
- a study entitled "Investigation into the Substitution of Other Materials for Plastics, Particularly Glass"
- evaluation of three manufacturable systems with positive test results
- evaluation of international experience and test results in the foodstuffs industry, the chemical industry, the construction industry and agriculture

All of these activities were coordinated with the manufacturer, the VEB Technical Glass Factory, Ilmenau, in accordance with a joint concept formulated by the Ministry for Environmental Protection and Water Management and the Ministry for the Glass and Ceramics Industry. To date, 1700 meters of glass pipe have been installed in water management projects. Of this total, 140 meters of glass pipe have stood up under continuous operation in well-running systems, and 1300 meters of pipe are being readied for continuous operation.

The following intermediate results have been achieved:

- The use of glass pipes for chemical lines in buildings as a substitute for plastic, nonferrous metal and stainless steel pipes should be pursued. Glass pipes can also be used as a substitute for standard steel pipes in cold applications if the serviceability/cost analysis for glass pipes shows lower cost. The following maximum permissible operating pressures (OP) and test pressures (TP) apply for flanged glass pipes as a function of nominal pipe diameter:

Area of Use	DN (mm)	max. OP (MPa)	max. TP (MPa)
Chemical lines	25 to 80	0.4	1.3 x OP
	100 and 150	0.2	1.3 x OP
Cold lines	25 to 40	0.6	1.3 x OP
	50 and 80	0.4	1.3 x OP
	100 and 150	0.2	1.3 x OP

- Use of glass pipes as underground water lines must be rejected based on existing laboratory results and international experience; the required internal pressures (operating pressure and test pressure) and external pressures (bearing load of soil above pipes and traffic loads) do not leave a large enough safety margin. In addition, scratching and settling are unavoidable. Current joining methods do not adequately allow for the material characteristics of glass pipes. Further developments must take into account available glass pipe and its connecting hardware.

To date, glass pipes have been used primarily by the VEB Water Supply and Waste Water Treatment, Berlin. Following is a detailed presentation of the results of this application.

Use of Glass Pipes in the Wuhlheide Waterworks

The chemical characteristics of water as well as aggressive ambient moisture cause the water treatment systems to wear relatively quickly, particularly the pipe material (steel). This accelerated wear necessitated periodic replacement and repairs. The short effective life of exterior corrosion protection coatings lead to system maintenance requirements, some of which could not be fulfilled.

The overall condition of the plant, which went into operation in 1914, as well as the decrease in operational reliability caused the redesign of the plant to be considered. Technological investigations were carried out within the scope

of a process analysis, the purpose of which was to ensure that the current maximum plant capacity of 120,000 m³/d was maintained, whereby as many of the old plant structures and equipment as possible were to be retained, while at the same time effectively limiting the causes of wear.

Use of a downpipe aeration system developed by the VEB Water Supply and Waste Water Treatment, Berlin, (economic patent)² has led to significant reduction in the amount of aggressive ambient moisture². In addition, experiments using dehumidifiers to reduce moisture were successful.

The increase in efficiency of the first filtration stage (coarse filtration) has considerably reduced the load on downstream process stages. This enables increased use of the total of 72 Bollmann filters for removal of residual iron and manganese. However the usefulness or susceptibility to malfunction of the Bollmann filters depends to a great extent on the lines leading to and from them which are heavily worn (perforation due to pitting).

It was therefore necessary to replace these lines and to use a material which had a greater resistance to corrosion in order to reduce required maintenance (external corrosion protection, internal corrosion, incrustation). Emphasis on greater use of domestic raw materials coupled with the substantial limitations placed on the use of plastic pipe manufactured from oil led to the consideration of glass pipes for such applications.

Preliminary Steps in Solving the Problem

Because the advantages of technical glass--and its physical sensitivity to loading--were well known, the possible applications and limits of glass pipes were discussed jointly by the Wuhlheide Waterworks and the manufacturer of glass pipes, the VEB Technical Glass Factory, Ilmenau.

These discussions led to a contract for cooperation regarding the use of glass pipes for water supply lines. Agreements were reached on the design, supply and installation of glass pipes of size DN 150 mm as the supply and discharge lines of two Bollmann filters (a total of approximately 10 m) as a test set-up, with all parameters laid down in a performance specification.

At the VEB Water Supply and Waste Water Treatment, Berlin, it was proposed that a greater number of pipes be replaced, including those of larger diameters, however it was necessary to limit the use of glass pipes to those parts of the plant which met requirements in terms of pressure and nominal diameter. For this reason, the filter backwashing line (DN 150 mm, operating pressure approximately 0.6 MPa) and the rinse water line (DN 200 mm), among others, could not be replaced by glass pipes. Those pipe sections selected as the test set-up, which had a diameter of 150 mm as required from a hydraulic standpoint, also met the requirement that the pressure not exceed 0.2 MPa. Here, the maximum pressure was 0.05 MPa.

Test Set-Up

Those pipe sections selected for testing the suitability of glass pipes were fitted to Bollmann filters Nos. 21 and 22 in filter house 2 (there are a total of 4 filter houses, each with 18 Bollmann filters).

Technical Data	Supply Line	Discharge Line
Nominal diameter (mm)	150	150
Length (m)	3.25 avg.	1.85
Operating pressure (MPa)	0.05	0.05
Water temperature (K)	283	283
Ambient temperature (K)	278-286	278-286
Type of connection	flange collar seal foodstuffs grade rubber 632-3	flange collar seal foodstuffs grade rubber 632-3

Using a coupling flange at each end, one end of the supply line was connected directly downstream of the branch nozzles of the DN 600 mm untreated water supply line, and the other end was connected to the DN 150 mm tapered gate valve upstream of the entry point into the filter boiler. In addition to straight pipe sections approximately 1.50 and 3.0 m in length, two 90° pipe elbows were installed in each line. A length of approximately 1.85 m of the vertical filtrate line between two gray cast iron pipe elbows was replaced by glass pipe (Fig. 3). The small amount of corrosion on the gray cast iron fittings did not require replacement of the fittings. Measures to compensate for thermal expansion were not required, as max. $t = 7$ K [as published].

The pipes were held by pipe clamps bolted to steel brackets. The brackets were welded to the steel supports of the service catwalk. The old pipes (steel, DN 150 mm) were removed by employees of the VEB Water Supply and Waste Water Treatment, Berlin, and the glass replacement pipes were installed by employees of the VEB Technical Glass Factory, Ilmenau. In July 1981 the glass pipes were turned over to the operator.

Test Results

The test results are summarized by both parties in the concluding report entitled "Use of Glass Pipes in Bollmann Filter Systems" dated 20 October 1982:

1. The glass components show no evidence of wear. The inside surfaces of the glass parts are completely covered with sediment, however the sediment has not attacked the glass.
2. The coupling flange joints show no signs of ageing.
3. The flat seals have retained their elasticity, and no surface damage or ozone cracks or the like were apparent.
4. Support structures, supports and fittings show differing degrees of corrosion. Cadmium plated bolts are relatively free of corrosion, while the

bolts used in the coupling flanges appear to be rusted on. For this reason, a suitable type of corrosion protection must be selected for all metal parts. Galvanization or cadmium plating of such parts in conjunction with a proper corrosion protection coating should be sufficient.

Putting the Results into Practice

The VEB Water Supply and Waste Water Treatment, Berlin, and the VEB Technical Glass Factory, Ilmenau, contracted for design, supply and installation of glass pipes in filter house 2 after evaluation of the results of the test set-up. The contract, concluded in November 1982, was performed between the middle of January and the end of February 1983.

Old pipes were replaced by glass pipes on a total of 18 filters, and operational reliability was ensured in this part of the water treatment plant.

Contracts were awarded for pipe replacement on an additional 36 filters (filter houses 1 and 4). Work began in October 1983 and installation of the glass pipes was completed in January 1984. The pipes on the remaining 18 filters in filter house 3 were not replaced by glass pipes. For reasons of material cost, worn lines in this filter house were replaced by those steel pipes and fittings removed from filter houses 1, 2 and 4 which could be reused.

The Economic Aspects of Glass Pipe Use

Material substitution does not relieve us of the responsibility to carefully study economic effectiveness. According to our data, the costs of glass pipe use are as follows:

The design, supply and installation of glass pipes, including 20 percent reserve material and additional costs for corrosion protection and installing the pipes, yields an average cost of 540 marks/m. A large percentage of this amount is attributable to the pipe connections, and includes material cost as well as the cost of installation (there are an average of two pipe connections per meter of pipe). It ought to be possible to reduce the number of connections per pipe [as published] to a maximum of one as a result of specialized manufacturing, which would not greatly increase costs regardless of pipe length and which would be feasible within the framework of a special project. The following savings would then be achieved:

- material costs for glass pipe: 42 percent
- installation work (estimated): 40 percent

The costs would then be the following, compared objectively:

Total cost per filter: 1650 marks
Total cost per meter of pipe: 324 marks

All costs were determined for "RASOTHERM" collar pipes with a nominal diameter of 150 mm and a maximum permissible operating pressure of 0.2 MPa.

The costs (based on 1983 prices) for the same amount of steel pipe (5.1 m) would be:

Total cost per filter: 1320 marks

Total cost per meter of pipe: 259 marks

A cost comparison shows that the investment cost for use of glass pipes in the first filter house is roughly 1.25 times that for steel pipes.

Conclusions and Suggestions for Considering Use of Glass Pipes in Water Treatment Plants

The following conclusions can be drawn based on the test set-up at the Wuhlheide Waterworks of the VEB Water Supply and Waste Water Treatment, Berlin, as a continuation of the principles and concepts prepared by the staff of the job manager for glass pipe application of the Ministry for Environmental Protection and Water Management:

1. Use of "RASOTHERM" glass pipes in the Wuhlheide Waterworks is not necessarily applicable without restriction to other water treatment plants. As already mentioned, it was only possible to replace two of the four lines on each filter with glass pipes due to limits imposed by pressure and pipe diameter.
2. Specialized manufacturing (lengths of glass pipes including lengths of the legs of pipe bends) is to be undertaken based on optimum design specifications in order to reduce the number of pipe connections to a minimum.
3. Joining components which can be corrosion protected are to be used without exception, e.g. cadmium plated nuts and bolts, which are to be provided by the supplier of the glass pipes and connecting hardware.

Use of Glass Pipes in the Friedrichshagen Waterworks

For reasons of material substitution, glass was used as the material for the four DN 50 mm chlorinated water supply lines which run from the chlorinating station to the second filter house. The heated concrete canal (clear dimensions of top: 0.90 x 0.60 m) to the first filter house was shared. In order to cut costs, the chlorine lines for the first filter house were laid along its north gable and east side wall. From here on, the lines were again laid in a canal up to the second house. A total of 1320 m of DN 50 mm glass pipe was laid. Of this total length, four 200 m lines were laid in canals (800 m) and four 130 m lines in the building (520 m).

Most of the pipe sections used were 3 m in length. These sections were joined by coupling flanges with collar seals made of foodstuffs grade rubber type 1024, and each section was held by two brackets. To fit the sections together, pipe lengths of 2.0, 1.0, 0.5, 0.3, 0.2 and 0.1 m were used as well as offsets and 90° elbows. The pipes in the building and in the canals were held by prefabricated technical building equipment brackets. Because the pipes laid in canals are protected, damage caused by outside forces is not expected.

Inside the building, pipes mounted on the walls are protected by corrugated wire grating panels. Installation of the glass pipes was done by the VEB Technical Glass Factory, Ilmenau, within the scope of investment measures. With an average of four workers, installation was completed in only about two months, allowing the project to be turned over at the end of August 1983. In designing the chlorinated water lines (chlorine content 5 g/l), allowance was made for a change in length of 0.016 mm/m at a fluid temperature of 288-293 K and a maximum temperature differential of 5 K. The maximum permissible pressure is 0.4 MPa. The pump achieves a discharge pressure of 0.15 MPa, whereby an operating pressure of 0.04 MPa is sufficient.

Exclusive of the cost of the protective gratings and the construction of the canals, the total investment for design, supply and installation amounted to 23,400 marks. Had the same work been done using plastic pipes, the cost would have been roughly 65,000 marks. These figures are equivalent to 117.2 marks/m and 49.2 marks/m for glass pipes and plastic pipes, respectively (a factor of 3.6) [as published].

In view of the higher cost of glass pipes, further evaluation of their use must deal with better adaptation of the pipes to required pressure and diameter, as well as with improvements in installation methods (perhaps welding). Such studies must also include seal service life and pipe expansion behavior.

Summary

The above intermediate results of investigations into the use of glass pipes represent the first step toward broader use of glass as a substitute material in water management plants. The experience gained in the VEB Water Supply and Waste Water Treatment, Berlin, illustrate the special problems presented by the use of glass as a pipe material as well as the advantages of using glass pipes and associated problems. Future work in this area must more precisely define above all the economic parameters for general application.

FOOTNOTES

1. Authors' collective, "Untersuchung zur Substitution von Plastmaterial durch andere Materialien, insbesondere durch Glasrohranwendung" [Investigation into the Substitution of Other Materials for Plastics, in Particular through the Use of Glass Pipes], Research and Development Work by the VEB Water Engineering and Water Management Planning Combine, Halle, 1983 (unpublished)]
2. E. Wilinski, "Die Fallrohrbelueftung--ein effektives Verfahren zur Belueftung von Rohwasser" [Downpipe Ventilation--an Effective Method of Aerating Untreated Water], WASSERWIRTSCHAFT-WASSERTECHNIK, Berlin, Vol 32, No 5, 1982, pp. 175-178
3. J. Conderelt, "Korrosionsschutz in Feuchtraeumen der Wasservirtschaft" [Corrosion Protection in Moist Areas of Water Management Plants], post-graduate thesis on the subject of corrosion and corrosion protection tion, Technical University, Dresden, 1982

GERMAN DEMOCRATIC REPUBLIC

SCIENTIFIC SOLUTIONS SOUGHT FOR IMPROVED RECYCLING PROCESS

Neubrandenburg FREIE ERDE in German 13 Nov 84 p 3

[Article: "First 'Runway' for Electronic Scrap in Berlin-Hoppegarten -- New Recycling Plant at the Edge of the Capital; Range of Usable Secondary Raw Materials Increased"]

[Text] Considering that in the GDR economy about 90 to 95 million tons of waste products accrue annually, including about 7.3 million tons of traditional secondary raw materials such as scrap metal, waste paper, etc, this leads immediately to the decisive problem: how to collect and recycle secondary raw materials to an ever greater degree and to create the preconditions for a re-use which is economically meaningful?

About one-third, that is roughly 30 million tons, of all "second-rate" raw materials are to be recycled in 1985. This objective cannot be attained simply by increased performance in collecting secondary raw materials. What is needed is scientific-technical solutions in order to expand the range of usable secondary raw materials. One side of this is research into new possibilities of effective utilization. However, basically only that can be used which was first collected and reprocessed.

Heavy Hammers At Work

The new factory sector of the combine Metallaufbereitung Halle, which was built in only 24 months of construction time at the edge of Berlin--in Hoppegarten--, deals specifically with the processing of electronic scrap. Experts of this combine, in cooperation with experts of the combine Schwermaschinenbau "Ernst Thaelmann" Magdeburg and the Rationalisierungsmittelwerk Senftenberg, created the procedure and the installation technology. In this way, an important state planning project of the sector Science and Technology was fulfilled. So far, two patents were registered, one of them for the entire technological process. An installation was created which is unique in the socialist camp and is one of the most modern of its kind in the world. The central piece of equipment is a hammer crusher. For the first time, such equipment was planned and built in the GDR. Rotating hammers smash control panels, relays, conductor plates, measuring and control devices into the smallest scrap

particles. Then magnetic graders separate magnetic from non-magnetic parts. In further complicated installations the scrap is then sorted again. Recipient of the high-grade electronic scrap is the Mansfeld combine "Wilhelm Pieck." Formerly, electronic scrap consisting mostly of nonferrous and precious metals, as well as aluminum, had to be broken up manually with great expenditure of time and strength. Fifteen workers managed to work 5 tons per day. Now, the installation accomplishes that in 1 hour with 12 youngsters.

Soon, Household Appliances Also

In future, not only control panels, relays and conductor plates are to be "run through" the new Hoppegarten plant. Among other things, it is also planned to reprocess electronic scrap from household appliances here. Old stoves, TV and radio sets and washing machines will then no longer disappear in trash containers or "junk corners," but will find their way to the Hoppegarten reprocessing plant. And we learned from the economic council that first steps are being taken in our district, also, in order to tackle the development of this resource.

But although trains are not yet rolling towards Hoppegarten, we can continue collecting diligently. By 30 September, more than 10,100 tons of steel, cast iron, copper, lead, zinc, and aluminum came from the households of our district. This meant a plan fulfillment of 100.5 percent. The expansion of the collection center network projected for 1985--at present, there are 235 scrap collection centers in towns and villages--and more favorable collection hours will also prove a stimulus. At present, many collection drives are being carried out through the bulk control of ABI, since collection of metallic secondary raw materials has priority. For example, 100 tons of steel scrap are sufficient for the production of steel for 30 tractors, 11,500 refrigerators and 4,600 meters of railroad tracks. One thousand tons of steel scrap also eliminate the import of 1,600 tons of ore and 200 tons of coke.

Despite the importance of steel scrap, in the last analysis all secondary raw materials are of prime interest. For this reason, the collection containers at shopping centers should not simply be ignored, since even light-weight secondary raw materials amount to something in the end.

9917

CSO: 2300/201

GERMAN DEMOCRATIC REPUBLIC

BRIEFS

HOUSEHOLD PLASTICS RECYCLED--During the first half of 1984, more than 1,900 tons of used thermoplastics were collected from households in the GDR. The network of collection places for bottles, cups, fasteners, tubs, bowls and other plastic products has been further expanded. The net containers placed in front of shopping centers and in residential areas have proven successful. At present, there are 6,500 tons of them. At the same time, collection centers of the combine for collecting secondary raw materials buy up increased quantities of thermoplastic products. Melting is the most effective reprocessing method for thermoplastic waste from households. Seventy-two kilograms of these used products save processing those primary substances from 1 ton of petroleum which are needed for the production of primary plastics. Through new preparation steps it is possible to substitute 1 ton of the household plastics mixture for 0.7 tons of primary plastics. [Text] [Magdeburg VOLKSSTIMME in German 1 Nov 84 p 2] 9917

INDUSTRIAL PLASTICS RECYCLED--Were one to enumerate all the plastic articles being produced in Zerbst, it would be quite a list. Bowls for flower arrangements, hydro-culture pots, soap dishes, desk pads, watering cans and hoses, but also operating devices for television sets, filter frames for vacuum cleaners, parts for household kitchen appliances from the production profile of the state enterprise Plaste-Verarbeitung which is part of the combine UNITRAS. Eighty percent of the products go directly to stores; the demand for quantity of goods and wider range of products is constantly growing. For this reason, the 130 employees want to fulfill their yearly plan by 21 December. As is generally known, petroleum is the base material for plastics, and this valuable raw material is imported by our state for costly foreign currency. Each ton that does not have to be purchased increases our national income, and provides additional funds for our social policy. Thus it is imperative that the factory, with an annual goods production increase of 7 percent, proceeds to process more and more reclaimed materials and secondary raw materials in addition to primary plastics. For some time now, the collective has gone this way successfully. Three industrial plants supply them with plastic scraps, in part already recycled. Between 1980 and 1984 it amounted to 628 tons, which eliminated 440 tons of primary plastics for the production of which 1,840 tons of petroleum

would have been necessary. A mechanical mixer recently put into operation for the injection molding equipment facilitates processing of the reclaimed material. Through clever work organization, the male and female workers of this section who work in three shifts, managed to man the mixer with two workers from their own collective. In 1985, reclaimed substances are to make up 60 percent of all material to be processed! (For this year, the plan provides for 50 percent). The collectives are already working with these new reference figures. However, this quantity overtakes the three plants already mentioned and makes it necessary to also recycle and process plastic scraps from the state enterprise SERO. For this reason, the Zerbst factory in 1985 wants to develop and build a central preparation installation with the help of other plants of the region. [Text] [Magdeburg VOLKSSTIMME in German 15 Nov 84 p 1] 9917

PLATINUM RECOVERED THROUGH RECYCLING--Platinum scrap is now being processed through a more effective procedure in the Berlin Metallheuten- und Halbzeugwerken (BMHW). It contributes to the economy by supplying in the coming year platinum catalysts for the production of nitric acid and fertilizers, by an increase of more than 10 million Marks over 1984. After use, the round, netlike catalysts with a diameter of 2 to 4 meters are being reprocessed by the Berlin plant for further utilization. Until now, melting and granulation of the old nets were necessary before the platinum could be freed and separated from impurities. Now, a research collective has found the required reaction conditions which allow the direct release of the platinum. Through energy and man-hour savings, this means an annual useful effect of more than 1 million Marks. [Text] [East Berlin NEUE ZEIT in German 6 Dec 84 p 1] 9917

CHROME RECOVERED FROM LEATHER--From leather scraps, the state enterprise Berlin-Chemie has managed to salvage important intermediary substances for the making of cosmetic products. Because of their favorable effect on skin, these protein hydrolysates are valuable components of hair tonics and bubble baths. At the end of the chemical production process there remains the leather pulp, the transporting of which to dump caused the Berlin plant significant expenditure up to now. In addition, it contains chrome, which is added in the leather industry for tanning purposes. A research collective of the factory, in which apprentices of the factory's vocational training school "Alexej Leonov" cooperated, found a solution which makes possible the use of another factory waste product, i.e., sulfuric acid. The acid occurs in the production of fire-prevention devices and of intermediary pharmaceutical products. With the new procedure, up to 50 kg chrome can be regained from 1 ton of leather sludge. [Text] [East Berlin NATIONAL ZEITUNG in German 5 Dec 84 p 3] 9917

GLASS PIPES IN HOMES--Employees of the VEB Building Economy, Freital, have stated in a report to the Central Committee that they had good competition results in this anniversary year of the GDR, twice achieving first place in the performance comparison of the municipal housing administration and building economy enterprises in the Dresden bezirk. Their union comrades now have a solid basis for the responsibilities they have taken on for 1985. Increased effectiveness is to be achieved through new scientific and technical developments. The workers in Freital, for example, want to collaborate with the private plumbers' trade group in the development and implementation of a new technology suited to local conditions: the use of glass pipes in place of galvanized steel pipes for residential hot water supply. This will reduce reconstruction time for such systems, their service life will be increased and residents will enjoy higher-quality hot water. The construction output of the Freital employees, increasing by a planned 24.3 percent, is to be increased by another 5 percent. [Text] [East Berlin NEUES DEUTSCHLAND in German 18 Dec 84 p 5] 12552

CSC: 2300/212

HUNGARY

CONSUMER SALES TAX, PRICE SUBSIDY SYSTEM MODERNIZATION DISCUSSED

Budapest PENZUGYI SZEMLE in Hungarian No 11, Nov 84 pp 813-819

[Article by Tibor Ersek, counselor of the Ministry of Finance: "On Modernizing the System of Retail Sales Taxes and Retail Price Subsidies"]

[Text] In conjunction with the economic mechanism's further development, the questions of how the price system and fiscal system are constructed and operate are again in the forefront of attention. One such question concerns the modernization of the system of retail sales taxes and retail price subsidies (hereinafter: price subsidies) that dates back to 1968, more than 15 years.

According to one of the principles that were formulated in 1966 and remain valid even today, together with the preferences and dispreferences that must be employed also long term for pressing social reasons, retail price ratios should approximate reasonable producer price ratios. This basic principle presupposes the following: the price system employs retail price subsidies only to a limited extent; the sales tax functions as a price factor; and in their trends the retail prices and producer prices move together. Both the favorable and the unfavorable experience gained during the past 1.5 decades have confirmed the practical significance of the retail price system's and sales tax system's operation, from the viewpoint of the consumption structure and external economic equilibrium as well.

With significant changes in the construction of the retail price system and sales tax system, we have been able to partially achieve that retail price ratios approximate reasonable producer price ratios, and a linkage between the trends of the retail prices and producer prices. The partial results are evident particularly in the following:

- a. In comparison with 1968, the retail sales tax system is much more uniform (the number of sales tax rates and price subsidy rates jointly has dropped from 2000 to about 250);
- b. As of 1 January 1980, we increased the sales tax on a wide range of industrial goods (parallel with reducing the amount of net income built into the producer prices), thereby creating a positive difference between the retail price level and the producer price level;

- c. By holding firm the sales tax rates for nonessential consumer goods, we established the basis for the joint movement of the retail prices and producer prices.

Far more modest are the results achieved in dismantling the price subsidies. The reasons for this should be sought in the following: changes in international value relations (e.g., in the price ratios of energy sources and manufactures) to our disadvantage; relatively rapid rise of the subsidized products' domestic costs; slow recognition of the importance of adjusting to the new scale of values in a way that affects personal consumption as well; and the objective difficulties of such an adjustment.

Despite the substantial retail price increases in recent years, the price subsidies for certain foods and the households' energy consumption are still considerable. A high proportion of subsidy is included in the prices of certain goods for children. The price subsidies are high, proportionally and in their absolute amounts as well, for local transportation fares, water and sewer rates, and for the maintenance and renovation of state-owned housing. The subsidies from the state budget are considerable also for cultural goods and services. Over and above the preceding, the state contributes substantial subsidies to the prices payable for medicine.

The following are some data on the rates of the price subsidies that were in effect on 1 September 1984: for beef, 22 percent; for poultry meat, 23 percent; for pork and meat products, 11 percent; for canned meats, 20 percent; for canned fruits, 8 percent; for milk, 64 percent; and for butter, 117 percent. For meals at plant cafeterias and under the coupon system, 20 percent of the prices paid.

Within children's apparel there is a 50-percent price subsidy for babies' clothes and clothes for Pioneers. The price subsidies for children's shoes range from 39 to 81 percent, in inverse proportion to size. Subsidized items for children range from children's furniture through school supplies to textbooks.

The retail price level of energy for household use, not including electricity, covers on average about 45 percent of the producer price plus trade markup. Local transportation fares cover merely 22 percent of the cost plus profit. On average for the country, water and sewer rates cover only about 20 percent of the cost plus profit. The state subsidizes more than 50 percent of the motion picture theaters' costs, and 75 percent of the theaters' costs. (Ticket sales cover, respectively, barely half and a quarter of the costs.) Payments for medicine average about 26 percent of the producer price plus markup.

It should be noted in conjunction with the sales tax system that nearly half of sales tax revenue is collected on sales of gustatory products [tobacco products, alcoholic beverages, coffee, tea, and spices]. In addition, significant amounts of sales tax are included in the prices of gasoline, cars and luxuries.

Outside the circle of dispreferred products, however, the sales tax can be termed low. Here the average levy--sales tax divided by nonsubsidized sales

price--is 12 percent. This is due in part to a so-called normative sales tax rate of 11 percent; and in part to the fact that in retail trade the circle of goods and services with a zero tax rate is much broader than what would be warranted in principle.

Purchases by the various population strata differ in their structure. Among other things, food accounts for a larger share of the purchases of low-income strata than of high-income strata. A similar difference exists between urban and rural residents in terms of the proportion of food within their purchases. Urban residents likewise use (are able to use) services more extensively. In comparison with the other strata, the independent households of retired persons spend relatively more on energy and medicine. Within the circle of dispreferred products, there are no significant differences among the individual population strata in terms of the proportion of gustatory products within their purchases. In relation to their incomes, the households of intellectuals spend slightly less on gustatory products than the households of the other strata are spending. The high-income households are spending a larger proportion of their incomes on luxuries, and on cars and fuel for their operation.

This, in a nutshell, is the explanation as to why deflections of the retail prices affect to different extents the real-income and nominal-income proportions of the various population strata and their respective households. Considered from the viewpoint of income brackets, the effects of the price deflections are the same as those of a moderately progressive tax on family income. By territorial groups, the price deflections favor urban residents over rural ones. By social strata, the price deflections appreciate the nominal incomes of retired persons and, to a lesser extent, of intellectuals in comparison with the average, and they depreciate slightly the nominal incomes of peasant and dual-income households. The price deflections' effect on income proportions is not very significant, except in the case of the households of urban retirees.

Because both subsidized and taxed consumer goods are encountered in the households' purchases, and the structure of purchases may differ from the structure typical of a given stratum, at the microeconomic level the income-regulating effect of the price deflections is not free of contradictions.

Some Questions of Principle Regarding Modernization

Among the questions of principle regarding the modernization of the retail price system and sales tax system, I wish to single out the following:

1. The two-tier price system and the average level of sales tax.
2. Assessment of the price deflections' income-regulating role.
3. The role of the retail price system and sales tax system in influencing the structure of consumption.

In the course of the work to perfect the price system, there was general agreement on the expediency of realizing a significant proportion of society's net income in the form of a retail sales tax, in addition to realizing such income

in the producer prices. The advantages of this solution are, among other things, the following: the productive sphere, particularly export, is freed of a proportion of net income; and there is a natural linkage between consumption and the net income in question.

As I have indicated, the results that have been achieved in this area in recent years are by no means negligible: the price system's so-called negative two tiers ceased in 1980, and since then--according to data anticipated for 1984--the net sales tax as a proportion of retail sales has risen to about 5 percent. The dismantling of retail price subsidies, in combination with higher wages and social cash entitlements, and also the increase of the average tax rate and especially of the normative sales tax--partially at the expense of net income included in the producer prices--could serve as the basis of further improvement.

There is no consensus among economists on their assessment in principle of the desirable income-regulating role of the retail price system, respectively of the price deflections. Some economists believe that the retail price system--in combination with other instruments--should serve income policy more forcefully. This view places greater emphasis on maintaining the price subsidies that affect the incomes of low-income and large families, and it taxes heavily the consumer goods that are purchased typically by high-income families. In the opinion of other economists, however, the use of retail price subsidies to regulate incomes is unwarranted as a rule. This view starts out from the contention that, in developing the right proportions of personal incomes, it is expedient to strengthen the role of the instruments (of wages, social cash entitlements, etc., for example) that directly influence personal incomes, while retaining the essential social entitlements in kind. It too presupposes the application of the dispreferences whose purpose, in addition to generating revenue, is the indirect taxation of persons with high incomes.

In this polemic I essentially side with the latter view, but would like to add a few comments. First, I believe that in the sales tax system it will be permissible also long term to employ tax concessions based primarily on considerations of income policy. (For example, to waive the sales tax on the overwhelming majority of staple foods.) Secondly, the price level of essential consumer goods cannot be independent of the level of nominal incomes and their dispersion. When the level of nominal incomes is high and their dispersion small, the opportunities for dismantling the price subsidies are more favorable. In other words, the raising or rise of nominal incomes, and of low incomes in particular, is a prerequisite for phasing out the price subsidies that are not warranted long term.

It will be feasible also long term for the price system to employ preferences and dispreferences as instruments of the policy on consumption. Ours being a two-tier price system, in general we should regard the producer price plus markup plus normative sales tax as the equilibrium price. Which means that a zero sales tax is, with few exceptions, a preference. It will be expedient to assert in this manner some of the preferences in our policy on consumption.

I believe that, from the viewpoint of our policy on consumption and without striving to present a complete listing, we should employ dispreferences also

long term in the prices of most gustatory products, luxuries, and motor fuels. Although for different reasons,, increases in the consumption of the mentioned products should be discouraged in the future as well.

For considerations of consumption policy, however, I believe that price or budgetary subsidies will be appropriate also long term for milk and dairy products, and for certain cultural goods and services (textbooks, motion-picture and theater tickets).

For pressing social considerations, it will be warranted also long term to set municipal transport fares and the payments for medicine below the level of their actual costs. When setting municipal transport fares, we should take into consideration that municipal mass transport is a public service, and also a part of production's infrastructure. For reasons of social policy, fare discounts should be retained also long term, in both local and intercity passenger transportation.

While recognizing that price deflections do have a consumption-regulating and -diverting role within specified limits, I would like to emphasize that the sales tax system should be neutral from the viewpoint of influencing how the structures of production and consumption develop. By this I mean that the market positions of competing products that lend themselves to mutual substitution ought to be influenced not by the sales tax on them, but mainly by their cost ratios and utility value ratios. But this question already leads us to the sales tax system's restructuring.

Restructuring the Sales Tax System

Studies in conjunction with perfecting the retail sales tax system recommend the following:

--For nonsubsidized products, development of a sales tax system with few tax rates;

--Wider application of the so-called normative sales tax; and

--In addition to the sales tax, also a consumption tax on specified products.

In a sales tax system that contains few tax rates and is supplemented by a consumption tax, interaction between retail and producer prices will be stronger, and the desired preferences and dispreferences can be asserted more clearly.

The significant reduction of the number of tax rates during the past 15 years, and introduction of the normative sales tax in 1980 provide a good foundation for restructuring the sales tax system.

A sales tax system with four tax rates--not including the consumption tax--appears expedient for products that are not subsidized. If the normative sales tax is left unchanged, the tax rates (in percent of the wholesale price plus sales tax) could be, respectively, 0, 11, 22 and 30 percent.

The more important commodity groups for which zero sales tax is warranted are as follows:

- Foods sold on the free market, and most staple foods with a few exceptions;
- Children's apparel;
- Cotton, bandages and health-care supplies;
- Books, newspapers and magazines;
- Building materials and other materials used also for housing construction;
- Manufactured fertilizers, plant protectants and herbicides; and
- Industrial repair services.

For most staple foods and children's apparel, the application of zero sales tax is warranted by incomes-policy considerations; for cotton, bandages and health-care supplies, by health considerations; and for books, newspapers and magazines, by cultural considerations. Building materials must be exempt from sales tax to provide the same tax conditions for private individuals who build, maintain or remodel their homes as for the construction industry. Aside from the fact that the purpose of repairs is to preserve value, zero sales tax on industrial repairs is warranted also by the consideration that to levy a sales tax on such activity would raise the price level, and this in its turn would generate additional income in the second economy.

It will be expedient to apply the normative sales tax to the products for which neither preferences nor dispreferences are entirely warranted. Such products include certain foods (generally nonstaples), hardware, soaps and detergents, furniture other than for children, a large proportion of sports equipment, toys, wood and paper products, etc.

As a rule, the 22-percent sales tax applies to products with a high capitalist-import content and with no preferences set by incomes policy or consumption policy. (For example, adult apparel, certain nonstaple foods, car tires and inner tubes, etc.)

We must consider whether to retain a sales tax higher than the normative rate on certain traditional export items (e.g., Hungarian salami or Rana margarine) so as to channel domestic consumption toward substitutes. But it is essential that the export of the products in question be economical. Long term the assertion of these external economic considerations could be relaxed in accordance with the restoration of external economic equilibrium. Thus if the normative tax rate is increased, for example, a significant proportion of items of adult apparel and of mixed industrial goods would be taxed at the same rate.

The 30-percent sales tax reflects dispreferences of consumption policy or incomes policy. We may include here, for example, silver jewelry, Herend porcelain, and crystal. The 30-percent sales tax is warranted for most of the products on which also a consumption tax must be levied, over and above the sales tax.

The curtailment of the given products' consumption, the generation of revenue to cover the state budget's expenditure, and the absorption of high incomes warrant the levying of a consumption tax on specified items, mostly gustatory

products and luxuries. The consumption tax is a part of the retail sales tax system. It will be expedient to bear this in mind, in drafting the budget and in the price system's economic analyses as well.

The first step toward restructuring the sales tax system has already been completed in summer of this year. Naturally, restructuring involves price movements, but it will cause only a minimal rise of retail price level if the suggested tax rates are employed. We intend to continue the sales tax system's restructuring in harmony with the price plan.

Curtailment of Price Subsidies

As evident from this article as well, our price system still employs price subsidies fairly extensively. The rates of the price subsidies are considerable especially in the case of several groups of goods and services. The following reasons can be cited in support of curtailing the extensive use of price subsidies and reducing their rates:

- a. Price subsidies distort the price system's criterion-of-efficiency function;
- b. Price subsidies are linked to consumption and not to performance, and thus they generally undermine the orientation on performance;
- c. Price subsidies depress the retail price level and the wage level, and therefore economic computations show wage costs to be lower than the cost level of manpower reproduction;
- d. Generally speaking, price subsidies redistribute incomes less efficiently than what would be warranted from society's viewpoint;
- e. Price subsidies could have undesirable effects on the structures of production and consumption, and--by generating excessive demand for the subsidized goods and services--also on the domestic market's balance of supply and demand, and on external economic equilibrium. Naturally, the impact of the different price subsidies on the structure of consumption and the markets' equilibrium varies.

The existence of price subsidies permits producer-price or cost increases that otherwise the market would not necessarily recognize.

As a rule, the effects that price subsidies--respectively the price level and price changes due to subsidies--have on the structure of consumption can easily be demonstrated, especially in the case of foods, certain items for children (e.g., children's furniture) and individual sources of energy. Furthermore, it may be assumed that the low level of the prices of medicine and of water rates encourages wasteful consumption.

The relationship between food purchases and food prices is clearly evident from the following table [next page].

As evident from the table, in 1971-1975--when the level of food prices rose only 10 percent under a price policy that held back increases in the retail prices of foods--the growth rates of the consumption of purchased foods, and of retail sales in particular, were substantially higher than the growth rate of food consumption. At the same time, the consumption of home-grown food

Changes in Food Consumption by Sources of Supply (in Percent)

<u>Sources of supply</u>	<u>1971-1975</u>	<u>1976-1980</u>
Purchases	+25.5	+3.8
Of which retail	+32.7	+4.7
Own production	-13.9	-4.3
<u>Social entitlements in kind</u>	<u>+33.2</u>	<u>+6.5</u>
Jointly	+13.8	+2.2

dropped considerably under the influence of a number of factors, including a retail price level held low through rising procurement prices and retail price subsidies. All this generated considerable additional demand that had to be supplied from central market allocations, keeping the expansion of farm and food-industry export lower than what otherwise would have been possible. But these trends changed significantly in 1976-1980, when the retail price level of foods rose by roughly 50 percent, slightly faster than the price level of agriculture and the food industry.

In conjunction with the price subsidies' curtailment that is warranted long term, the question arises as to whether this could be accomplished in one step, through a one-time price and wage reform, accompanied of course by increases of the social cash entitlements. A one-step reform unquestionably offers advantages: for example, it would be possible to compensate for the necessary price increases directly through higher wages as well as higher social entitlements. But a one-step reform raises several problems, and the most important ones among them are as follows:

--Curtailment of the price subsidies for essential consumer goods would necessitate sharp and extensive price increases that would affect the various social strata very painfully but unevenly. The price increases' impact would be relatively the greatest on the households of retired persons, low-income families, and urban residents in general.

--The socially acceptable compensation for the price increases, together with the automatic rise of nominal incomes (it would be neither possible nor expedient to completely eliminate this rise), would probably result in such an outflow of incomes that the goods and services needed to absorb them could hardly be supplied under the present external economic situation.

--The introduced measures would suddenly and radically change the retail price ratios, causing changes in the structure of purchases to which production would not always be able to adjust immediately. Thus temporary disturbances could arise in the balance of supply and demand.

--The protective function of price subsidies would decline, without any transition and to such an extent that this would cause hardships for social strata that cannot be disregarded (considering the present level and dispersion of real income).

These social strata include the low-income groups, and in general the retired persons and large families.

Despite the average pension's sharp rise (from 1,272 forints [per month] in 1975 to 2,849 forints in 1983), the pensions of nearly half the number of retired persons are still lower than 2,500 forints a month. The income differences between families in terms of the number of dependent children have not diminished. The income per unit of consumption realistically reflects the income situation of families differing in the number of dependent children. If on this basis we assign an index of 100 to a childless family in 1982, the corresponding indices were 84 for a family with one child, 76 for a family with two children, 67 for a family with three children, and 52 for a family with four or more children.

In accordance with the preceding, it appears more realistic to curtail the price subsidies gradually, by suitably coordinating price policy and the policy on the standard of living.

To ensure that the curtailment of price subsidies takes place at a socially acceptable rise of the price level, under the coming five-year plan it will be expedient to formulate and implement a price and market policy that can serve as the basis for a more moderate rise of the producer price level.

1014

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HUNGARY

REGULATORS ALONE NO PANACEA OFFICIAL WARNS

Budapest NEPSZABADSAG in Hungarian 12 Dec 84 p 10

[Article by Dr Laszlo Nyikos, deputy director of Internal Revenue Directorate of Ministry of Finance: "Differentiation or Reversal"]

[Text] Normativity is one of the declared theoretical pillars of the economic regulatory system. According to this the regulation is permitted to differentiate only according to real professional characteristics but not from one enterprise to another. At the same time to a greater or lesser extent the regulation of, for example, the major agricultural operations necessarily differs from the general (which is valid for industry). There are several reasons for this. The given natural production conditions (soil quality, climate conditions) differ, the price conditions are different, etc. The community and public service enterprises or the health care authorities and the cultural activity organizations as well as others, for example, the development enterprises and the small cooperatives are all operating under atypical conditions. But care must always be taken that solutions differing from the general rules of the game be possible in only as narrow an area as possible and only for the most justified professional characteristics.

Special Problem

It follows theoretically (and also practically) from the normative character of the economic regulatory system that differentiation takes place between the economic organizations according to the efficiency of their work. This is understandable since if the various enterprises and cooperatives are operating under roughly the same circumstances and conditions, then--since the level of their economic operation differs--the results of their activity will be different. Compared to 1982, for example, in 1983 the number of economic organizations showing loss in their balance increased from 40 to 70 (not including the agricultural producer cooperatives). Of these, 19 also operated at a loss before. It appears in the first instant that the differentiation process gained strength last year since the number of losing enterprises and cooperatives nearly doubled. But if we also take it into consideration that the ratio of these compared to all operating units is less than 2 percent, we will more likely come to the conclusion that an unjustifiably large number of our enterprises are operating at a profit. To put it differently this means that the profit does not yet reflect the social effectiveness of faithfully done work.

The future fate of these enterprises in so-called extreme situations presents a special problem. That is, whether solving the problems of those who lag in competition can be entrusted to the system of regulations (and if so, to what extent), or—as was the practice usually followed in recent years—the appropriate state administrative organization must deal with the low efficiency enterprises within the framework of special procedures. This is a complicated and responsible task. It is sufficient to mention only as illustration for this that the total of the 1983 losses exceeded 5 billion forints.

Income and resource differentiation of the enterprises better conforming to the performances, and strengthening the market conditions are joint goals of the ideas introduced in early 1980 as well as of the ones in effect for 1985-1986. Last year the average resource efficiency at the national economic level (the average profit yield of means and wages used in production) was 7.1 percent which is 0.7 percent lower than in 1979. Based on this index we can say that the degree of efficiency of using the committed resources has decreased somewhat in 4 years. Of course, the average decrease shows a more detailed picture if we separately examine the national economy's branches. Profit per unit of live and embodied labor decreased, for example, in industry from 8.8 percent to 7.3 percent, and in the construction industry from 17 to 10.7 percent. (At the same time the agriculture as well as transportation and communication were able to increase their similar indices.)

What Does This Show and What Does This Not Show?

The problem of measuring efficiency is well known in professional circles. What this mainly consists of is that it is difficult to provide with one index number or another a reliable qualification about the performance of some enterprise, branch of industry or national economic branch. This characterization is also valid for the efficiency indices just mentioned, since its value can be strongly influenced by the price changes, the price mechanism, or the varying wage demands, equipment demand and other characteristics of the business. But even the index numbers handled with this reservation call attention, supply a sort of an alert that it will be worth the effort to conduct additional examinations and analyses because this way we may get closer to the truth, better learn the actual social efficiency of the activities of the economic operating organs.

For example, if we are evaluating the changes of profitability differences between the industrial enterprises, their differentiation, with the index resource-proportional profit, it can be said that the extent of this was minimal in the most recent time period. The gap among the construction industry's economic operators opened up more than this, which is related to the general moderation of investments. The various comparative analyses show that the ability of our domestic enterprises to produce income has not changed noticeably, and even decreased compared with 1982. At the same time the improvement of this would be one of the basic conditions of differentiation, for which of course it is also necessary that the regulation permit even larger "outbursts" in the positive direction than usual, that is, leave "more money" at the enterprises with above average efficiency. This is timely even more so now because—as we have indicated—the differentiation process is extremely slow and is hardly noticeable among the industrial enterprises.

The Role of Production Factors

The differences in efficiency grow very sensitively under the effect of the production factors becoming costlier. That is, the increase of costs decreases profit and thus also the efficiency index. Recently the differentiation—which, by the way, was not big—between the industrial enterprises was related mainly to the increase of wage benefits. That is, the enterprises cannot all "work out" the increase in the burdens of live labor the same way. It is therefore probable that further rise in the burdens tied to wages which will take place next year—as normative increase of the burden—will accelerate the process of differentiation between the enterprises. This can take place in such a way that increasing the wage benefit will mean a proportionately smaller burden at enterprises with larger requirements for means, but greater burden at enterprises with low organic composition.

The Control Headquarters of the Ministry of Finance examined how many of the industrial enterprises and cooperatives are operating below and how many above the average (industrial) level in the two different time periods. It was found that the number of economic organizations working with below average efficiency barely changed in the last 4 years: in 1979 we had 296, and in 1983, 286 industrial enterprises and cooperatives where the resource related profit was smaller (or at the most, the same) as half of industry's average. They have also determined that the number of economic operators well exceeding the average and reaching at least one-and-a-half times as high has also hardly changed: there were 229 in 1979 and 226 in 1983. Naturally, not the same enterprises and cooperative are (were) in the above average and below average groups in the two different time periods. Some dropped out of there and others took their places. But the number of economic operators in the various efficiency classes shows a surprisingly high degree of stability. It is also an interesting phenomenon worth mentioning that between 1979-1983—that is, within the economic regulatory system currently in effect—about one-third of our industrial enterprises and cooperatives received lower qualifications than before, almost one-third were able to improve their position, while the others are maintaining the position they had 4 years ago.

Passing On the Costs

Systematic examination of the mechanism of effects of the economic regulatory system (regulating the income of enterprises, regulating earnings, etc.) show that at some enterprises the realized profit changed not (only) according to the social efficiency of the work done but the enterprise's pricing policy, shortage management and the so-called resource-limited environment also played (are playing) a big role in the way it develops. In the 1970s, under the conditions of relatively rapid economic growth the main source of profit was primarily the systematic increase of production and sales volume. At the present time production is stagnant or is decreasing in several special branches and enterprises, consequently an earlier important source of increasing profits has been plugged up. But this interest continues to be a central element of the regulation, even if it is often inconsistently implemented, and even if at times it orients the economic operators in a not entirely desirable direction. Profit from the failure of volume to increase is—according to control as well

as everyday experience—"made up" in part by the price increases. This does not necessarily mean that the pricing policy of the enterprises must be condemned, nor that they are making unfair profits. The exchange rate policy also has an effect on the profit content of the prices, since if, for example, the forint is devalued, the profit of exporters increases. Still we must say that the main motivator of the efforts of enterprises to increase prices is to pass on the costs, to increase profits through this channel. Administrative price control by itself cannot place limits on unjustified price increases. At the same time the shortage phenomena and monopoly situations are well known in our economy. Last but not least, the movements which took place between the various efficiency groups can be attributed to the differing opportunities which exist here, rather than to the efficiency differences contained in the organization and technological level of the various enterprises.

The professional public opinion expects generally significantly more from the current regulatory system than it can deliver because of its nature. Often even the heads of enterprises tend to equate the economic environment with the current regulatory system. At the same time--without wanting to give here some kind of an exact definition--the economic environment is a significantly broader concept than the regulatory system. The latter is only a part of the former, since besides it such things are also to be considered in the external environment as, for example, the organizational-institutional structure of economic management, or the national economic planning, the market environment, but also such factors outside the economic guidance system as, for example, the scientific-technological progress or the cadre policies. The environmental factors and the enterprise's internal activity together shape the looks and performance of the enterprises. Therefore it would be an unpermissible oversimplification to attribute the various experiences--including the powerless differentiation or rather, levelling out--to merely the regulatory system (and within it to taxation, subsidies and removals). We do not want to lessen the significance of the regulatory system with all this in strengthening the process which has been desirable for a long time. But we must emphasize that consistent practical implementation of the standardized system of requirements, of the principle of normativity may beyond a certain limit also cause undesirable problems. Solving the problems of low efficiency enterprises which get into extremely difficult situations now surfaces not only as a regulation technology, financial and legal question but also as a human, political one.

And What Can Be Expected?

The conflict of economic rationality and order of values of the socialist society is concealed behind the reorganization process well known in trade circles. At such times when major changes take place in the pricing system and the regulatory system (this was the situation in 1976, in 1980 and this is expected again in 1985) it also significantly "reorganizes" the financial positions of the enterprises. A more favorable situation develops for some, a more difficult one for others. But according to the experience the enterprises within a relatively short time will return to their original financial positions.

In 1985-1986 significant changes took or will take place again in the elements of the economic regulatory system. In addition to the appearance of new enterprise management formats there will also be changes in income regulation, earnings regulation, the calculation system, foreign trade regulation and credit policy. Like in the major regulator modifications in the past, we can say with great probability that the income positions of the enterprises will again significantly modify.

We emphasize that we expect this to take place with respect to the income differences between the economic operating organs and not between the individuals. But at the same time it is also true that the enterprises which realize higher incomes will be able to increase the earnings levels of their workers at a faster rate than their low efficiency partners. This has been desirable for a long time.

It will depend to a large extent on the consistent operation of the new statutes going into effect at the beginning of next year whether a new reorganization process will take place, and if so, when and to what extent. It would in essence exert an effect in the direction of equalization and because of the earlier, unfavorable experiences it should by all means be avoided. It would be unnecessary to speak here about the harmful effects of egalitarianism. But how well will the economy's management be able to resist these harmful tendencies, depends not only on its own decision but also on society's tolerance.

8.86

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HUNGARY

NEW DEVICES ADOPTED FOR CONTROLLING MARKET

Budapest NEPSZAVA in Hungarian 19 Dec 84 p 4

[Article by Zsuzsa Gal: "Control--With Economic Tools"]

[Text] Those who follow with attention the changes in economic regulators, probably sense that the new regulations and the economic policy ideas dictating them are aimed at building a competitive economy. This probably triggers the question in many people: Yes, but what will happen if problems develop in the market processes? If occasional conflicts of interest and contradictions develop which might jack up the prices, hindering production somewhere, and even threatening the continuity of the population's merchandise supply.

Such temporary problems have developed also in the past--let us just recall, for example, shortage of certain parts or construction materials--so that the possibility of this danger is far from new. Just as the institution is not designed to prevent, or signal and correct such problems. Four years ago the government set up the institution of market control and with a new regulation and modified functions it is now placing it into the service of a modernizing economic life.

Thus, it is obvious that now and in the future--the independence of the enterprise is increasing, their decisionmaking authority is expanding and the special measures are being cut back, i.e. the market mechanisms are generally gaining strength, a particularly big role is placed on market control. The new government regulation starts out from the point that the market is a unified integer and therefore a unified approach and responsibility is also needed in controlling it. The market control's organ with nationwide authority is the National Material and Price Control Office [OAH, or OAAH] which carries out its tasks in cooperation with the branch ministries.

How it does this, I discussed with Dr Laszlo Racz, head of the OAH's department of economics. I screened out from the things he said that market control consists of, or will consist of four main areas of activity. The first one is obtaining, gathering market information. The second one feeds on this, indication of foreseeable problems and elimination of the ones which have already occurred. The latter--we will later see why--also requires money which under the name of "intervention fund" is available to market control. We can consider the use of this fund as the third function. And the fourth one is also a

new task for market control: influencing certain longer range programs, naturally also from the side of market processes, in the interest of the market balance.

Information Base--With a Panel

Let us then start out with information gathering. The OAH has already built up an information base and continues to rely on it. It has created a panel which represents industrial and agricultural production, commerce and transportation, i.e. the main branches of the national economy. The fate and path of 200 enterprises and 160 products are followed with attention with the panel's help. Or more precisely, only the obstacles in their paths, the phenomena threatening their fates. That is, tabulated questionnaires have been submitted to the 200 enterprises on which indications are sent to market control only if problems develop somewhere in the economic processes.

As Dr Laszlo Racz said, this is necessary because this way the signals are received faster from the sales sphere than if the market control relied only on the statistical reports, the usual analyses and balance reports. And he added that the 200 enterprises were selected in such a way that each one of them is in contact with hundreds of users--that is, other enterprises. They supplement this information mechanism with direct consultations, conducted with the experts of additional enterprises.

Thus the market control from the statistics, the information collected about the observed enterprises and products, from the consultations and balance reports is able to develop a picture indicating whether the market's structure is progressing in the direction targeted by the regulators and the plan. In other words, whether the positive changes the economic policy identified as goals are being implemented in the sales sphere.

Intervention Fund for Solving Problems

Naturally they do not anticipate this to happen always, everywhere and completely. Thus the next question is: What should be done if a problem appears somewhere? For example, it can happen that an enterprise reduces its inventory too much, which somewhere else can later hinder the continuity of production and then in turn cause a shortage in the population's merchandise supply. Market control's aim and task is to stop this process in the beginning, that is, to take steps where the inventories were decreased and thus prevent the harmful consequences.

Similarly, prevention is also desirable if an unexpected price increase is seen somewhere, even though competition and balance could be expected in that area. At such times the reason for the price increase is examined and they try to find its antidote before inflation would spiral further.

Even the market control has no magic solutions, of course. Let us look at an example how it still can solve some minor problems and prevent major ones. Let us assume that a production enterprise signals that it does not have enough packaging material, continued production and population's merchandise supply are in jeopardy. What can the market control do? The government has

given market control an authority to choose from several tools in such a case. It can make use of the central reserves and assign packaging materials from it to the factory. If this is not possible, or does not seem practical, it may arrange for extraordinary import. If the signal arrives in time, it may organize domestic production of the shortage material. It may be that this is not possible, in which case it may arrange for the production of substituting material, familiarizing the people with it. Propagandizing it may also be the market control's job.

No matter which tool it chooses, it tries to reach its goal through methods in harmony with the economic mechanism. Because--even though market control is to be considered a central governmental activity--it can issue orders only in the ultimate case, and even then this must be done in such a way that the government must be informed about it. (Prior approval by the government is necessary for market control orders of major effect.)

On the other hand the above mentioned intervention fund is available to it. With it enterprises can be helped over certain temporary difficulties. This sum of money comes largely from the budget incomes but is also supplemented from other sources. For example, from the amounts that the enterprises conducting unscrupulous economic operations are required to pay if the court requires them to do so. But it may also be supplemented from a fund into which the affected enterprises--on the basis of agreements made with the Price Office--pay certain amounts in connection with the world market price fluctuation of certain imported items. Specifically we are talking about coffee and cocoa; commerce purchases these products at fluctuating prices but does not change their selling prices. If the world market price decreases the excess income thus generated is placed into a fund from which--if the process reverses and the purchase price increases--commerce can buy coffee and cocoa even at higher prices.

On what can market control spend the money in the intervention fund generated in this manner? First of all the winter storage of vegetables and fruit must continue to be supported from this, and in some cases the production of those agricultural products the wholesale and consumer prices of which may perhaps cause the farms to quit producing them. Beyond this already traditional goal, enterprises which have fallen into difficult situations without any fault of their own, for example, because of fire or explosion, can also be aided from the intervention fund. Aid may also be given if, for example, due to cancellation of a shipment from abroad the enterprise must buy some raw material or semifinished product from another source at a higher cost. From the intervention fund the market control may support organization of the production of such products which replaces imports or ease shortages in the population's merchandise supply.

On the other hand these subsidies differ fundamentally from earlier state grants inasmuch as they do not represent a permanent commitment for the budget, only alleviate temporary problems. That is, the money placed into the intervention fund is spent on aid only in one given market situation rather than in repetitive situations. The development funds of enterprises cannot be replenished from it, but it can be used to replenish the revolving funds, for

example, for the purpose of enabling the production of a missing item. The intervention fund may also prevent price increases. If some enterprise costs increase only temporarily, then--in order to keep it from passing this on in prices and starting an inflationary process--it may receive temporary assistance from the intervention fund.

And what is even more, if an enterprise buys some imported product at fluctuating prices, it may make an agreement with market control, just like with a bank, that--as in the case of coffee and cocoa--it will place its temporary excess income into market control account, and this fund will help it when the purchase price of the given product increases.

Programs and Suggestions

But, as we have indicated, market control will in the future handle not only short term problem-solving but also programs, naturally from the angle of merchandise trade. At the present time, for example, the supply and demand of chemical fertilizers are not in harmony--mainly with respect to quality. The interests of the affected parties--producers, users and foreign trade dealers--are in conflict. On the basis of authorization from the government the Price Office then may take steps to create harmony.

Our other example belongs now into the past, yet perhaps better illuminates the role of the market control in preparing programs. When the housing construction program was modified by significantly increasing the ratio of apartments to be built from private resources, the market control--had it existed at the time--would have been required to caution that private persons were using brick rather than panels. Such a warning could prevent the brick shortage the builders suffered.

The market control authorities are directing implementation of energy saving, material saving, technology modernization, waste utilization and import replacement programs, organizing the conditions necessary for these. They are also coordinating the activities of participating enterprises (designers, material suppliers, manufacturers and users).

As we can see, market control requires multifaceted, circumspect, moderated and analytical work from the Price Office as well as from the affected ministries. The theoretical analyses are just as much a part of this work as the possible operative measures, the negotiations conducted with the enterprises just as the proposals to be made to the government. Market control must try to invigorate competition while strengthening the market effects and see to it that the economic processes remain on the path designated by the national economic plan. It must solve all these primarily with the help of market tools and methods.

8584

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HUNGARY

ROUNDTABLE WEIGHS MACROMANAGEMENT IN LIGHT OF VARYING INTERESTS

Budapest NEPSZABADSAG in Hungarian 24 Dec 84 p 5

[Roundtable discussion: "Economic Guidance and Interest Relationships"]

[Text] The published guiding principles for the 13th party congress pose as a task: "We must develop a method and mechanism for harmonizing interests which will bring varying interest to the surface, make possible their better coordination and at the same time ensure the priority of the public interest." The interpretation of interest relationships in the wake of the further development of economic guidance--this was the theme of a roundtable discussion held in our editorial offices. The participants were: Marton Buza, director of the Theoretical Research Institute of the National Council of Trade Unions; Istvan Huszar, director-in-chief of the Social Sciences Institute of the MSZMP; Kalman Kulcsar, deputy first secretary of the Hungarian Academy of Sciences; Rezso Nyers, chief consultant for the Economic Sciences Institute of the Hungarian Academy of Sciences; and Jeno Zanyi, vice president of the Chamber of Commerce. Our editors were represented by Istvan Foldes, deputy editor-in-chief.

A Threefold Interest Structure

[Question] Interests and the possibilities for realizing them are not given once and for all. For example, how will the link between enterprise and social interests develop as a result of the further development of economic guidance?

[I. Huszar] I would consider it important that at the time of preparing the economic reform in Hungary we recognized the threefold interest structure of society--we took into consideration not only individual and social interests but also group interest, the enterprise interest. I believe that later our concept became a little schematic. As we conceived it, there is a ruling social interest, and the others are subordinated to it in a

hierarchy. I feel that this conception is not good. Nor can I agree that the social interest is nothing more than the sum of enterprise interests. Interests have subordinate and coordinate relationships. The abstract social interest cannot be independent of the interests of the elements or groups building society. But it is also true that there cannot exist a social interest independent of group and individual interests. If I say the word interest, I am also saying the words interest differences and interests oppositions. And if there are interest differences then there are clashes. And these exist not only vertically but horizontally as well, at the level of both enterprises and individuals.

[R. Nyers] In my opinion we can accept as a starting point that the national economic interest is the sum of enterprise interests, but even so the former contains something extra too. But this something extra cannot appear on the scale of a smaller community. An example is the requirement for the payments balance of the country, as an integrated social interest. And there is political interest also. It is not a social interest that there should be no conflict between the leaders and workers at enterprise X. It is more likely a social interest that the conflict should be noted in time and that the opposing views can clash with one another. But it is obviously a social interest that production be undisturbed in the economy as a whole, that cooperation between enterprises and between people be good.

[K. Kulcsar] Every individual and every enterprise acts in two sorts of situations. One is determined by the existing processes, the effects arriving from the social environment. This is the real situation. The other situation, which we might call the normative situation, is built on this, it consists of the regulators and, in a given case, ad hoc directives. Obviously this normative situation also has a reality, and the extent to which it is effective depends, for example, on what the relationship is between the real situation and the normative situation. If there are very serious contradictions between the two, if the regulatory system making up the normative situation is too complicated and contradictory, then the action of the enterprises becomes extraordinarily difficult.

[R. Nyers] The problem is whether the state economic regulation sums up the part interest well, and how much it has to say, in a normative way, about the details of the economic process. For example, we have profit interest, which really should be uniform, but in addition we have export interest, price interest, credit interest and investment interest, we have earnings regulation, and these are not always in harmony. In my opinion, definite changes in the course of the further development of the reform must make the situation less ambiguous. The other part interests should be integrated better in profit interest, over regulation should decrease, normativity should increase, the freedom of movement of the enterprises should expand. Even after that, of course, the interests of the national economy and the interests of the individual enterprises will not coincide automatically in everything. It is a national economic interest, for example, that there should be a competition situation in the economy, because without this the incentive for efficiency necessarily weakens. But this is not in the interest of every enterprise; for example, a monopoly situation is much more convenient than competition for a seller.

Amidst New Forms

[Question] We have talked thus far about social interest and enterprise interest. But how do interest relationships appear within an enterprise? How should we evaluate from this viewpoint, for example, the role of the new enterprise leadership forms?

[J. Zanyi] In my opinion, use of the new leadership forms could bring a change primarily in that interests will appear more pregnantly within the enterprise, the interests of the enterprise as a whole and the interests of the several groups of workers.

[M. Buza] The new authorities--the enterprise council and the elected leadership--will decide independently in strategic questions. And in the course of this they must take the interest of the enterprise into consideration but also that of the collective, and the two are not necessarily the same. These interests will clash within the enterprise council or within the leadership. In a given case it will not be easy to stand up before the people and say that the wage increase will be less this time because we have to develop the enterprise.

[R. Nyers] The interests not only differ, in part they are the same too. The difference and identity of interests have different phases. In my opinion, when the enterprise or a community of enterprises bargains with the state via the Chamber the worker interests and the leader interests completely coincide in, for example, that the tax burden of the enterprises should be of a bearable size. Another cross section of interest is the ownership interest. How much the leading organs of the enterprises provide for development and how much to increase personal incomes, for example, depends on accepting and realizing this ownership interest. This will be the big test for these new organizations. But it would be a mistake to think that the only problem is how to accumulate more. Society has an interest more important than this, that capital should be used well.

[K. Kulcsar] Manpower management could lead to clashes of interest within the enterprise too. If an enterprise has an interest in working with less or different manpower, this obviously leads to conflicts which must be recognized and resolved. And this can happen not only at enterprises but also in institutions and offices. The decision, however, is not simple. According to the experiences thus far, for example, the trade unions usually oppose such efforts, citing social reasons.

[M. Buza] I do not accept this, for the trade unions also agree with efficient employment and support planned regrouping of manpower, naturally with the condition that the workers be guaranteed work and their earlier pay.

And the Trade Unions?

[Question] Since we have mentioned the trade unions, will their rights and opportunities change, and if so in what direction?

[M. Buza] In my opinion the chief task of the trade unions at this time is to strengthen the standard of living orientation of economic policy. It is not only the external balance which is essential, it is also important to strengthen the internal balance, not only in the economic sense but in the social sense as well. According to our thinking thus far we have defended interests when the interests of people, groups or collectives were harmed. This is not enough. We need active interest protection. I would like to emphasize at the same time that the trade union movement cannot be only the representative of employee interests. More precisely, in the name of these it must represent the interests of society as a whole also.

In addition to continuing the good traditions we must develop a modern style of work and organizational conditions befitting the new conditions. For example, under the heading of decentralization some of our tasks must be transferred from the SZOT [National Council of trade Unions] and the trade organization to the enterprise committees.

K. Kulcsar] If they want to achieve a truly qualitative change then I think that a review of the present structure should be considered also. A trade union broken down two ways--by branch and by region--is incapable of a truly qualitative improvement of its work.

Social Services

[Question] Will not the increased profit orientation force enterprise social care into the background?

[K. Kulcsar] The question deserves an answer, a good division of labor between all-social and enterprise tasks must be found. Obviously there could be clashes between the collective and the enterprise in regard to carrying out social tasks. But the chief question is to what extent enterprise social care can take place at the burden of the costs, to what extent the enterprises can get their expenditures for such purposes recognized on the market. If these expenditures were to reduce the profit this could affect the distribution of the profit also, and this could have a negative influence on enterprise social services too.

[M. Buza] It is the experience of many years that there is worker solidarity. At the most recent session of the SZOT, for example, mention was made of the difficult situation of retired miners. The active workers undertook extra shifts to aid their old comrades with low pensions. In the future also solidarity, the mentality and collective feeling of organized workers, will play a great role in social care. In my opinion the profit orientation will not disturb enterprise social services. But in our judgment it is not right for the state to hand down to the enterprises a substantial part of the social expenditures. Social care is basically a state task, and cover for the social allotments must be ensured by increasing enterprise efficiency.

[R. Nyers] I agree that basically profit interest will not endanger enterprise social care; at most it will when there is no profit. And in my

opinion also it is not right that the enterprises, primarily, should have to solve social policy problems. Social policy connected with work is the task of the enterprises. And a significant part of the social policy problems awaiting solution appear outside the enterprise sphere. And one other observation, employment policy is not a social policy problem. The enterprises cannot hold on to superfluous manpower even if such over-employment should appear to be a social goal. The only exception, in my opinion, would be employment of those with reduced working ability.

[K. Kulcsar] Social policy constitutes a uniform system in which the central role really belongs to state social policy. The state must also coordinate social policy activity based on other sources--enterprise, trade union and other social sources. In any case, it is a first priority interest of the enterprise to keep and attract good manpower. It does this with wages and salaries, but also with a well running factory mess and nursery, with housing construction support, with transportation for commuting workers, and so forth. The big problem for me also is covering the costs. Comrade Buza is right, there is worker solidarity. But even so there will be disputes, for example about whether to send a bus for the commuters or improve the food or perhaps neither, but rather to increase the wages more.

What Will the Chamber Undertake?

[Question] How will the changes affect the worker of the Hungarian Chamber of Commerce? Can the Chamber undertake to represent not only the general enterprise interests but also the stratum interests of the leaders of the enterprises?

[J. Zanyi] From the viewpoint of interest representation we feel that our tasks will expand primarily in regard to dealing with the conditions of the leadership. We are representing the position before the government that these conditions should be less ambiguous and more easily reviewed for the enterprise leadership, and the activity of the branch ministries should be directed at checking adherence to them. All this could result in increasing the freedom of movement of the enterprise leadership. We are watching to see if the opportunities of the enterprises do develop proportional with the achievements. And we are watching how the new leading bodies work.

As for representing the interests of enterprise leaders, I think that demarcation of responsibility will cause a problem. There will be collective responsibility in addition to the older one person responsibility. How to handle this is not solved in our legal system. We would like for the elected director to be employed by the leading body of the enterprise within the framework of the work contract, defining his tasks and rights too. In the event of labor affairs disputes the leaders are often regarded as second class citizens, who can have no appeal against actions of the ministry which affect their persons. In the future, in the event of wrongs affecting their persons, they should be able to turn to the labor affairs court.

[M. Buza] I agree that the Chamber of Commerce should represent and protect enterprise interests. But the trade union movement cannot give this up either.

[Question] This is true in regard to the leaders of enterprises too, for even the directors are trade union members.

[J. Zanyi] Individual protection of the directors in their quality as employees is truly a trade union task. We do not want to deal with this, but we must pay attention to such individual problems too, for generalizable experiences, proposals requiring modification of the conditions, could derive from these problems.

[M. Buza] The Chamber must represent and protect the directors. The trade unions must undertake to protect the interests of individual directors, even against the enterprise council.

Local Interest

[Question] Traditionally the local organs are the chief representatives of regional development, of regional interests. But the enterprises play a part in this too. Can we expect a more striking appearance of local interests? And how can the harmonization of interests be made more public, more democratic?

[I. Huszar] The role of self-government, of the councils, is increasing with the change in the guidance of society. So there is a regional cross section of interest relationships also. And this exists not only in the hierarchy of self-government and in the relationship to central organs but also in the relationship of self-government organs and managing units.

[R. Nyers] For example, interests could clash in regard to local taxation. It becomes a local interest to put more of a burden on well functioning enterprises. And it is an objective interest of the enterprise to protect itself against this.

[K. Kulcsar] To express, defend or represent interests or even to talk about clashes of interest without increasing publicity will not lead far. As for regional interests, it is true that our country is small, but there are significant developmental differences among its regions. At the end of the 1960's, taking 100 as the national average, the per capita income in Budapest was 132 while in Szabolcs it was 67. I mention the end of the 1960's because following that we realized a settlement development conception. But this conception had the deficiency that it did not develop regions so much; rather, it developed settlements, primarily settlements stressed for some reason, while the development of the others was neglected. In recent years development has affected a few stressed village settlements in addition to the cities. Settlements must be developed systematically, taking into consideration the function of each settlement.

The new settlement development conception is intended to change this situation, and the further development of the economic guidance system

serves this also. But the real opportunities will go primarily to those settlements which are more developed already, where there is a good enterprise or a good producer cooperative, for there the councils have greater resources too. But somehow we must even out the differences between settlements, or political tensions will arise or increase. I consider greater publicity extraordinarily essential in this regard also. For example, the representatives and county council members should regard it as their obligation to publicly represent the interests of the inhabitants of the areas they represent in parliament or at council meetings.

The Role of the Party

[Question] To what extent will the role of the party change; what are the tasks of the party organizations in discovering interests, having them clash and harmonizing them?

[I. Huszar] The question is how the party will be able to transform very differentiated stratum interests into all-social interest. Amidst the new relationships with the masses we must come to a consensus, for otherwise we would not be able to make our aspirations into a national program, and mobilize for their realization on a national scale. In this sense the party must perform interest integrating activity. The Central Committee and the local work of the party must be able to undertake a national consensus in this sense as well. Obviously the party organizations must represent local interests, but at the same time they must rise above the local horizon and take a stand according to the interests of society as a whole. Knowing the policy of the party will help them in this, but on the basis of this they must decide independently. They must undertake confrontation--if necessary--taking the risk that the position in harmony with the national program will remain in the minority.

[K. Kulcsar] The party and its organizations must be politically active in the full sense of the word. That is, in contrast to the earlier practice and in place of operational guidance, the emphasis will fall on discovering interests and managing the conflicts appearing in this way. One must not be afraid of conflicts, for these may appear as the result of every decision, and the further development of economic guidance is certainly producing conflicts of interests at the all-social level and locally, in the factories. To recognize these conflicts, to discover the motives of them, to let them clash and to resolve them with agreement--this is the task of the party and the true content of politics.

[M. Buza] The party must harmonize the aspirations deriving from differing interests with ideology, with socialist values. Only the party can do this. But the party need not necessarily play the role of arbitrating judge in the case of every conflict or clash of interests. People can be persuaded with arguments, with political activity.

[R. Nyers] I would add to what has been said that in the event of a clash of interests the party organization cannot make the side of one party in advance. It cannot appear that the party members represent one or another

view, or the workers one and the intellectuals another. The problem must be studied objectively and then a stand must be taken. New relationships must be built up within the party organization, and in the public life activity of the party organizations also, in connection with the technical and economic intelligentsia.

NEPSZABADSAG: We thank the comrades for their participation.

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HUNGARY

NEW FOREIGN TRADE REGULATORS DESCRIBED

Budapest NEPSZABADSAG in Hungarian 30 Dec 84 p 10

[Interview with Imre Dunai, assistant undersecretary in the Ministry of Foreign Trade, by Istvan Gabor Benedek: "New Regulators in Foreign Trade: Exchange Rate, Licensing, Tax Refunding"; time and place not specified]

[Text] Where is our place on the world market? Nowadays we take many kinds of approaches to the possibility of preserving our economic position and as to how we could improve our prospects in the international division of labor. During this process, understandably, our capacity to adapt receives greater emphasis than ever before. And when we talk with Imre Dunai, assistant undersecretary in the Ministry of Foreign Trade, about desirable changes in the production structure, the development in enterprises' value-creating capacity, it is not accidental that he stresses at the outset that this highly responsible work must be done within the framework of harmonious foreign economic regulation, in a framework which, on the one hand, stimulates favorable exports and, on the other hand, guarantees imports that are always in keeping with our capacity to pay. This in no way means a departure from previously formulated principles, but rather just the opposite: for example, the exchange rate, the basic tool for regulating foreign trade processes, achieves its goal more consistently. This is complemented by normative tax refunding in exports and by an efficient tariff system in imports.

Advantageous Conditions

[Question] How do the state's trade policy interests and goals assert themselves in the practical activity of enterprises?

[Answer] Central management embeds the foreign economic tasks in the planned course of the national economy. The plans are of an orientational nature; the complex system of enterprise interests assures completion of the tasks. In foreign trade, too, without so much as standard 3-year, middle-range

plans and annual operative plans, the so-called relational scales--what we offer to which of our partners, and what we buy from him--and the amount of commodity trade necessary for operation and development of the national economy are fixed so that they are tantamount to a binding prescription for the enterprises.

The most conspicuous task of foreign trade planning is thus to make a map of the economic circumstances on the world market and to influence the conditions, if possible. This is nothing but a more and more accurate delineation--as accurate as possible--of foreign economic strategy. This is also aided by trade diplomacy. I am thinking, among other things, of long-term international agreements, economic arrangements and treaties of cooperation, or the rapid transmission of information which is essential for the investment goals of enterprises.

[Question] The basic issue in the financial regulation of foreign trade turnover is the development of the relation between foreign and domestic prices. How can the exchange rate, the tool for regulating this, become more efficient and more consistent?

[Answer] Proper and consistent price policy is our important interest. But let us approach the issue from two extremes: unilateral representation of domestic price level protection easily leads to a revaluation of the forint which exporters cannot offset by reducing the costs of products which bring foreign exchange or by increasing sales revenue, perhaps by modifying the product structure. On the other hand, serious problems would also arise if we only wish to unilaterally support the improvement of the enterprises' export profits by molding the exchange rate. That is to say, significant devaluations of the forint--carried out in one step--strengthens the external inflationary effects to such a degree that it is inevitably accompanied by a drastic rise in consumer prices. The central task of exchange rate policy is the establishment of the exchange rate level necessary for creation of a domestic competitive market and especially for the development of import competition.

What we strive for in the long run is to have the exchange rate and the prevailing price and financial system that accompanies it improve technical development and production's profitability and thus stimulate an increase in exports.

[Question] What new elements will there be in the regulation of exports rendered in rubles?

[Answer] The chief requirement concerning regulation of our economic relations with the socialist countries is that it assists in our intensive integration into CEMA. Accordingly, export regulation--on the basis of plan coordination and international agreements and within the confines of a fixed price structure--makes the enterprises interested in the fulfillment of obligations.

According to the currently valid regulation on rubles, the enterprises can in general realize the profits of domestic sales in ruble exports. The budgetary support/withdrawal system linked to the ruble exchange rate guarantees profitability.

A few elements in the export regulations of ruble payments will change starting in 1985. In the interest of a closer connection among the three sales spheres (the domestic, the dollar accounts and the ruble accounts) it is not necessary to prepare separate calculations for the individual sales trends. The regulation in the future computes the average of the interest of the domestic and convertible relation in rubles for the exporters. To decrease expenses and in the interest of better price work, there will continue to exist that element of regulation which makes it possible for enterprises which export more profitably to realize greater success.

Keener Competition

[Question] The goal of normative tax refunding is simply to help exports. How will this tool of regulation function in the future?

[Answer] The producers' price system introduced in 1980 developed the domestic prices of raw materials and semifinished products on the basis of wholesale prices not rendered in rubles. If the producer finds other, generally cheaper sources of supply (domestic production, ruble exports), the annuity like surplus income originating in his company is withdrawn in the form of a budget tax.

In accordance with international practice for the preservation of foreign market competitiveness in exports, the budget gives back this withdrawn surplus to the exporting enterprise in the form of so-called differential producers' turnover tax refunding. This sum is calculated on the net foreign currency revenue of the exporting enterprise; its rate at present is 2 percent.

Starting in 1985, in the course of continued development of foreign economic regulation, normative tax refunding acquires a greater role. In the interest of improving export incentives, enterprises which dispatch convertible exports share in a more proportionate, 7-percent differential producers' turnover tax refunding. Over and above the normative tax refunding, agriculture and the food industry--in keeping with international practice--share in a maximum 8-percent subsidy. And something else which likewise complies with international standards. It was formulated as a goal of long-range development in foreign economic regulation that export stimulation should prevail in the development sector, too. The most suitable form of this support is the tax allowance. We expect from this that the enterprises' export structure will adapt more quickly to the demands of the world market.

Without Monopoly Effects

[Question] The efficient tariff system must in principle stimulate the forward-pointing processes of the economy. Often, however, the enterprises

do not experience it that way. They say that the high tariff rate on machines and equipment hinders their technical development.

[Answer] The tariff system is the most important tool of economic regulators related to convertible imports. Its role is twofold: it serves trade policy goals and, on the other hand, it performs an economic policy task (import restriction, industry protection, domestic price level protection) on the domestic market. The tariff system regulates imports in a selective way.

It is international experience that the level of customs duties rises, namely, in accordance with the degree to which the products and commodities are processed. The customs duties are comparatively low on raw materials and semi-manufactured products, higher on light-industry and consumer articles and highest on machines and equipment. This also prevails in Hungarian commercial customs tariffs. It must be said, however, that from now on our customs duties will be neither lower nor higher than the international average. Thus they do not affect our enterprises differently than their partners on the world market.

[Question] The licensing system caused trouble for our enterprises in 1982-83. What kinds of changes can the involved parties count on in the interest of attaining the goals formulated just a short time ago?

[Answer] The characteristic and efficient regulatory tool of international commodity trade is export/import licensing. From now on, exclusively those in possession of a certificate issued by the Ministry of Foreign Trade will be able to enter into contracts with foreign firms. What the ministry thus accomplishes is that only enterprises which possess foreign trade legitimacy import or export. Moreover, the licensing procedure also makes statistical evaluation possible. The mechanism is in compliance with the GATT import licensing code.

The enterprises were able to observe that--parallel with an improvement in the country's balance of payments--the restrictions introduced in September of 1982 regarding import management were relaxed significantly. The payment of levies on the convertible import of diverse components, among other things, came to an end, and thus the import licensing practice fully returned to the customary, internationally accepted framework. Henceforth, however, our enterprises should not forget that their import trade must be in compliance with our economic goals, with improving the balance of payments in convertible accounts and, more specifically, with expansion of imports.

[Question] Under the impact of our economic troubles, the realization grew that the organizational system of foreign trade must be developed further. Our enterprises thus adapt more quickly and more ingeniously to the demands of the world market. Yet one still encounters incomprehension and often fierce debates.

[Answer] A financial conflict of interests always lurks behind the differences of opinion. At the same time, the conflicts are just as

diverse as the organizational forms and instruments of foreign trade enterprises. Included among them are the adjudication of foreign trade rights, the right to choose among enterprises qualified for foreign trade activity, parallel foreign trade authorization, i.e., the expansion of competition in foreign trade, the continued development of contingent foreign trade rights and, furthermore, of contractual relations.

Primarily enterprises which export a significant share of their production receive the independent foreign trade right. During the last 3 years--up until the end of 1983--64 producing, commercial and servicing enterprises again received the foreign trade right. The number of rejected applications was altogether three. Thirty-seven enterprises received an independent license in 1984.

If the enterprise does not want to conduct foreign trade permanently, it can obtain a contingent foreign trade right for each transaction. Last year the ministry issued 700 contingent rights. It is likely that this number will increase beginning in 1985.

According to the foreign trade law, if the foreign trade right is used contrary to the law, it can be rescinded.

Development of the organizational system is not a closed process. In the future, too, there will be the opportunity to attain the independent foreign trade right. The basic requirement of every change and modification is that the procedure be able to operate more effectively on the world market and that it aid in the development of profitable production and in the strengthening of enterprise independence and venturesomeness.

[Question] Does it look as if competition in foreign trade is really developing?

[Answer] Absolutely. Previously, only a single foreign trade enterprise was able to sell each article of merchandise; the foreign trade monopoly was interpreted in this way by many. This inflexibility is disappearing in degrees, indeed at an accelerating pace. From now on, the regulatory system helps to expand the sphere of competition and stimulates the enterprises to demolish the monopoly boundaries. If the machine industry enterprises, for example, seek exports in convertible accounts, they can choose among 13 foreign trade companies. The competition is significant in the area of agricultural and light industry foreign trade and in the marketing of patents and licenses, as well as in international shipping.

It is a fact, however, that so far competition has not increased the supplies of commodities to the degree expected. It has not exposed more favorable sales possibilities and markets. It has thus led to the repeated assignment of by far the greatest number of already existing and sold products and markets. In any case, this must be changed not only by improving the foreign trade system but also by developing the entrepreneurial spirit and authentic competition among producers, and by further modernization of the regulators which determine the meaning of cooperation among enterprises.

Only the indolent, those without ideas and those who recoil from what is new fear healthy competition and the prevalence of the inevitable conflicts of interest which result from the enterprises' new situation.

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HUNGARY

OPERATION OF SPECIALIZED FINANCIAL INSTITUTIONS DESCRIBED

Seven Specialized Financial Institutions

Budapest FIGYELO in Hungarian No 4, 24 Jan 85 pp 1, 6

[Article by reporter Miklos Breitner: "Not Yet Banks"]

[Text] As it usually happens, the engineers and technicians came up with something new. They took their idea to the director for economic affairs and told him they needed money. The director agreed. Knowing that he would not get money for this idea from the MNB [Hungarian National Bank], he took his credit application to one of the innovation funds. His reception was cordial, and the innovation fund proved willing and helpful. He was given a form to fill out and was told that the credit application could be approved quickly once all the data were available. The innovation fund in question is still waiting for its "customer" to return. The R&D engineers and technicians either were unable to answer the questions formulated with "banker-like" precision, or their answers would have been very unfavorable. The "innovation's" authors themselves turned it down.

Although this is not the usual course of events everywhere, a long-held belief seems to be proving false, namely that there is no money for technical development and innovation, because the financial institutions are so-and-so. The accusations made in years past sometimes bordered on demagogery, but there was nonetheless much truth in them. Now, however, the institutional changes introduced since then often are forcing the R&D engineers and technicians into lockstep with the financial sphere.

Conventional banks are like the British Empire. They have nothing more to gain but still have much to lose.

-A London banker

However, we cannot speak of a radical change as yet. If we examine the capital of the institutions established in recent years (of the funds, combinations, associations, and limited-liability associations--for one cannot complain of an absence of variety in the designations), even nonbankers can easily see that the small institutions are not about to redeem the world. A small stone may cause ripples on the smooth surface of still water, but one does not have to fear a tidal wave.



Figure 1. Snowwhite and her seven flirts.

Key:

- AGRIT** - Agricultural Innovation Association (Agrar Innovacios Tarsulas);
- AIB** - General Innovation Bank (Altalanos Innovacios Bank);
- EIA** - Construction Industry Innovation Fund (Epitoipari Innovacios Alap);
- Inter-invest** - [Specialized financial institution founded originally by foreign-trade enterprises and the Foreign Trade Bank];
- ISZFT** - Industrial Cooperatives' Development Combination (Ipari Szovetkezeti Fejlesztési Egyesules);
- MFPE** - Financial Combination for Technical Development (Muszaki-Fejlesztési Penzugyi Egyesules);
- MNB** - Hungarian National Bank;
- Technova** - [Specialized financial institution founded by Ministry of Industry].

The volume of credits that the specialized financial institutions provide is dwarfed by the volume that the Hungarian National Bank or the AFB [State Development Bank] provides. The outlays for research and development are likewise dwarfed by the outlays on investment. Which is what seems to be reflected in this area as well. However, the new institutions are striving for a piece of the action also in the investment part of the development process. Thus the activities of the large and small banks overlap, and this is the first sign of competition.

Some are of the opinion that decisive is not so much this first sign of competition, but what deposits these specialized financial institutions are allowed to hold, and whether they may maintain their business partners' current accounts. For the time being, they may not. And there is even controversy over the interpretation of the following passage in Decree of the Minister of Finance No 58/1984, promulgated recently: "... for the purpose designated by the principal, [the specialized financial institution] may hold assets from the principal's centralized technical development fund or other fund that may be used for development." Time will tell who interprets this passage how in practice.

Several industrial enterprises expressed concern that the Hungarian National Bank might look askance at the enterprise that withdrew certain deposits from there and transferred them to a specialized financial institution. "We are dealing with the Hungarian National Bank in so many matters, why should we make life more difficult for ourselves? Perhaps later. The wounds are still too fresh."

The "sound" banker, alas, is not one who foresees danger and avoids it, but one who, when he is ruined, is ruined in a conventional and orthodox way along with his fellows, so that no one can really blame him.

-J. M. Keynes

There was uncertainty as to how the Hungarian National Bank, in its capacity as the bank of issue, would make its debut in setting the reserve ratio and the rediscount rate. The small financial institutions were practically paralyzed as they waited to see what they could expect in the wake of the new statute. In mid-December of last year, the "small bankers" concerned were summoned to a meeting at the Hungarian National Bank and were told that the mandatory reserve ratio would be 20 percent of their capital account and special-purpose deposits, and that this reserve would earn no interest.

This announcement created quite an uproar. A 20-percent reserve ratio would have driven to the verge of immediate bankruptcy the institutions that were established, with considerable difficulty, in recent years. The Hungarian National Bank relented. First it reduced the reserve ratio to 10 percent (still on the basis of an oral announcement). Then the president of the bank of issue announced, in a circular, that the specialized financial institutions would have to deposit, free of interest, with the Hungarian National Bank 3 percent of their capital account and special-purpose deposits, and 5 percent of their other own and held assets. The proceeds from the sale of bonds, and the credits rediscounted by the bank of issue would be exempt from the mandatory reserve ratio. Simultaneously, the president "took cognizance" of the fact that the specialized financial institution would deposit, in accounts earning interest at the generally applicable rates, an additional 10 percent of the total amount subject to reserve ratio requirements. As some of the "small bankers" concerned pointed out, this again would not be good, but at least they would be earning some interest. However, there is deep concern that further changes and a tightening of the conditions can be expected, because the first round of bargaining was brief and relatively simple. The only question is whether these changes will come in six months from now or only next year.

All this has become exceptionally important because, pursuant to the cited new decree, the specialized financial institutions have an unambiguous profit incentive. Profit-orientation, of course, is only one aspect of the "banks'" operations. When analyzing the financial institutions' "health," their liquidity and accumulation of assets are as important as their profits. We must call attention to this with special emphasis, because an overriding short-term profit incentive now could avenge itself long term. A suitable business policy,

one with longer-term objectives, is based on the optimization of the mentioned three factors. Possible losses would have serious consequences, specified by statute. If we apply the quotation from Keynes to the present regulations, an ill-advised reserve ratio may easily drive everyone into ruin, and no one could really be blamed for it. Moreover, we would never know who could have stood the test, and who would have failed.

The method by which banks create money
is so simple that it boggles the mind.

-J. K. Galbraith

For the time being, however, there is no question of ruin. Only of initial difficulties, at most. Seven organizations, established to finance technical development and innovation, have started operation in recent years. In addition to the seven, there are four more, in various stages of gaining independence: a venture-capital office, a department, a fund, and a bank. The latter have been capital-allocating funds. Among them, the Hungarian National Bank's subdivision has become independent as of January and is now known as the General Venture Capital Bank Corporation (Altalanos Vallalkozasi Bank Rt). The venture-capital funds of, respectively, the Foreign Trade Bank and the OTP [National Savings Bank] have been operating with limited and separate accounts. (The latter venture-capital fund has become independent, likewise as of January, and is called Takarekinvest [Savings Investment].) Although in recent years it has participated in about two dozen limited-liability associations, corporations, etc. for prime contracting, the State Development Bank operates its venture-capital subdivision as a department, without a separate account. This again is not a good solution, because it blunts the profit incentive and obscures accountability.

Interinvest likewise stands out from among the others. (See our separate article.) They have been founded by, and are operating under, a variety of sponsors that usually include a bank (the Hungarian National Bank, or the State Development Bank). Technova has no bank as its sponsor. Its sole founder is the Ministry of Industry. (See our separate article. Regarding its capital, see FIGYELŐ, No 51-52 of 1984.) For the time being it can be said that the specialized financial institutions obtained their capital rather cheaply, for nothing. Mostly budgetary institutions, or perhaps large banks that are not operating under a profit-incentive system, have allocated the capital. Which means that the requirement regarding the rate of return on investment is not rigorous.

How are these small banks for the financing of innovation operating? According to an almost complete survey we conducted last year, from 16 to 60 percent of the received applications mature into contracts. The proportion of contracts was the lowest at the Financial Combination for Technical Development (a limited-liability association of the OTFB [National Technical Development Committee] and the State Development Bank), and the highest at the Construction Industry Innovation Fund (a limited-liability association of the EVM [Ministry of Construction and Urban Development] and the State Development Bank, one that is open to additional members). Here we have not included the Innovation Fund (now the General Innovation Bank Corporation) that has been in operation for

some time, and Interinvest. We might add that startup is typical of practically every one of the specialized financial institutions: for the time being, they are trying to find their way, and are visiting enterprises and cooperatives to solicit business.

The disbursed amounts range from a few hundred thousand forints to several million. Practically every one of the specialized financial institutions is careful not to enter into contracts that would require more than 10 percent of the institutions' capital. The total of credits for technical development and the total of investment credits vary by firms. According to the available data, the Financial Combination for Technical Development appears--at least on paper--to have adhered the most closely to the original objective: the total of its R&D loans is nearly three times greater than the total of its investment credits. From its available resources, the Agricultural Innovation Association (an open limited-liability association of the MEM [Ministry of Agriculture and Food], SZOVOSZ [National Federation of Cooperatives], TOT [National Council of Agricultural Cooperatives, and the State Development Bank) has provided 2.5 times more credit for investment than for development. We should add that the Financial Combination for Technical Development provides loans, almost automatically, for the objectives that the various departments of the National Technical Development Committee set. (At least this is the impression that emerges from a briefing the institution's senior managers held recently before the MTESZ [Federation of Technical and Natural Science Associations] Innovation Circle.) We wish to note, not with disapproval but merely to establish the fact, that the paucity of resources for development unavoidably relegates to second place at the large financing institutions the so-called complete financing of innovation tasks, or at least subjects them to stiff competition. Yet the financing of such tasks ought to be the primary purpose of the resources and funds for technical development whose administration has been entrusted to financial institutions. Their interest rates do not differ much from the rates that the Hungarian National Bank charges.

The institution of capital allocation might be of interest to the enterprises. For the time being, capital allocation is more of a promise on the part of the financial institutions. The amounts allocated so far are small, and the conditions provide food for thought. For example, capital has been allocated for a 12-percent annuity over 5 years, or for a 10-percent annuity over 8 years. The table in a supplement to the mentioned decree suggests that this form is final capital allocation in name only, and the enterprises must repay the allocated capital, in the same way as credits. Another example: a financial institution has provided 2.5 million forints of capital, for which it expects to get back 5.0 million forints over 4 years. The techniques of capital allocation--but not of capital sharing!--have yet to be learned, above as well as below. For this is (or should be) a suitable and necessary form of sound capital circulation.

Bankers Are Just Like Anybody Else, Except Richer.

-Ogden Nash

The specialized financial institutions are promising to take risks, and that is what their business partners expect of them as well. Presumably this is why

the concept that wanted these "small banks" to operate as nonprofit institutions, outside the profit-incentive system, was unsuitable. (Both the National Technical Development Committee and the Science Policy Committee favored this concept up to the decree's promulgation. They feared that a profit-oriented approach would be detrimental to progress in science and technology.) We must demand of R&D projects not only impressive technical parameters, but also a positive result in the bottom line of the enterprise's balance sheet.

And if profitability is a criterion, then also the organizations that aid research and development must operate under a profit-incentive system. Not to mention that once it has been decided to establish innovation funds that are not budgetary institutions, the question of whether or not they should be operating under a profit-incentive system becomes a moot one.

The indecision up to now, however, has triggered different patterns of behavior among senior managers. Society pressured them to assume greater risks. Therefore some of them gambled, saying that they were only taking risks. This misconception requires no further comment. But even such management behavior was spared its consequences, because the background financed such imprudence as well. The other extreme was to avoid trouble in any event, and management did not take even acceptable risks. Admittedly, it is easy to recognize and condemn gambling in retrospect, but it is far more difficult to estimate the amount of profit missed.

But now there is a gap in the regulation of financial institutions. The "small" ones have a profit incentive, the "big" ones do not, and this dichotomy could avenge itself in the future. But let us not be alarmists, and let us examine instead how a financial institution operates under a profit-incentive system, albeit an experimental one.

Regulation of the earnings of the financial institutions' employees is likewise linked to profit. If we consider how financial institutions operate, their very low operating costs, and the fact that they do not have to pay any interest on their capital, we find that they are able to attain a relatively high rate of return on assets, and therefore their employees' earnings likewise can develop very favorably.

In view of the Hungarian National Bank's 12.5-percent interest on time deposits, moreover, the danger exists that the institutions for financing innovation might simply deposit their capital with the bank of issue and thus show a profit of even 10 percent in their balance sheet. Merely through this not exactly "innovative" step, the "small banker" would qualify for a premium equivalent to 51 percent of his [annual] basic salary.

And if we compare the general regulations applicable to senior managers with the regulations applicable to the senior managers of the specialized financial institutions, we see that the latter fare better. If the ratio of assets to total wages and salaries falls in the highest bracket and the balance sheet shows a 10-percent rate of return on assets, for example, the senior manager gets a 35-percent premium according to the general regulations, as compared with the 51-percent premium of a specialized financial institution's senior

manager, as we have seen above. Admittedly, the 35-percent premium of an enterprise's senior manager may be increased a maximum of 20 percentage points if he fulfills additional premium tasks, whereas the decree prohibits this at small banks.

Well, even if in Hungary the typical small banker is not richer than his fellow citizens, or at least he is not richer because he is managing a financial institution, he nonetheless has a suitable incentive to strive for maximum profit. The only question is: Why not give the senior managers of the specialized financial institutions an incentive linked to the growth of assets? For that is what we need.

Technova Youngest

Budapest FIGYELŐ in Hungarian No 4, 24 Jan 85 p 6

[Article by Miklos Breitner]

[Text] The Ministry of Industry alone established Technova, in mid-1984. It had been in operation since September 1983, but under the supervision of the ministry's Main Department of Industrial Policy until the summer of 1984. Effective 1 July, it became independent, as an enterprise providing financial services. Its capital, from the centralized technical development fund of the Ministry of Industry, is 120 million forints, of which 98 million has been made available so far. Technova's charter states that, if necessary, 200 million will be added to the specialized financial institution's capital in 1985, and the same amount in 1986.

Founding an enterprise outside the banking system poses problems, just as its operation as a financial institution does. The enterprise's sphere of activity, as that of a specialized financial institution for development, has been unambiguously defined only now, since 1 January. In other words, it is neither an engineering firm, nor a full-fledged bank. It provides services lubricated with money, on what is perhaps the most inhospitable terrain within the Hungarian economy: in industry. Its preferred areas coincide almost exactly with domestic research policy. It is striving to aid technical development and progress in such rapidly growing high-tech industries as electronics, bioengineering, instrument production, medical technology, etc.

Of the 98 million forints of paid-in capital, 60 to 62 million has already been disbursed, and 15 to 20 million more has been committed. Although commitments do not yet mean actual disbursement, it is already evident that the capital will have to be increased. Especially now, with the introduction of the mandatory reserve ratio.

Competition will start, predictably and inevitably, for the enterprises' technical development funds, and the deposits in which they are held. The Hungarian National Bank is paying some interest on these funds even now. In this way the venture acquires additional assets for lending, capital that promises profit in the case of success. But Technova also pays interest on the deposits. Their reserve ratio requirement is the same as for capital. According to

Technova's estimates--which probably are valid for the other, similar institutions as well--the held resources can be circulated profitably, and also the central bank's reserve requirement can be met, if the capital is at least five times greater than the proportion of special-purpose deposits and other available assets.

Technova is able to provide financial assistance for technical development and for investment as well. Here the interest rate is the same in both cases, only the sources of repayment differ.

Technova is also able to invest, allocate capital. In such cases it stipulates for itself a share of the return, i.e., an annuity, either as a percentage of gross sales or as a fixed amount. Here Technova also assumes risk in the development project. If the "small bank" assumes full risk for the capital financing it provides, it reserves certain rights for itself and is entitled to a percentage (of the patent royalties, licensing fees, and gross sales). High risk can be expected to yield a large return, if the venture succeeds. This, too, is a part of venture capital's natural history. The financial institution intends to participate on a large scale in high-risk investments of this type only from its entrepreneurial reserve, set aside from future profits.

Technova, in the same way as its sister institutions, operates out of a few rooms, with a staff of barely more than a dozen, including part-timers and retired persons. If Technova and the others are able to remain small organizations of this size, and to "multiply mainly by division" during their start-up, then the prospects for the financing of technical development, of that "magic innovation," in Hungary will be somewhat brighter.

Interinvest Richest

Budapest FIGYELO in Hungarian No 4, 24 Jan 85 p 6

[Article by Miklos Breitner]

[Text] More than 40 foreign-trade enterprises and the Foreign Trade Bank founded Interinvest already in 1980 (at the same time as the Hungarian National Bank established its Innovation Fund), to reallocate development resources. It must be admitted that this was a good idea then, and several experts within public administration fully supported it. Because the foreign-trade enterprises' development funds, formed from profit after taxes, kept growing; but in an environment that restricted ventures for the enterprises' own account, it was not possible to spend the development funds within foreign trade in a narrower sense. It would have been unwise to spend this money solely on new office buildings and holiday homes for workers, and not only because of the construction ban introduced in 1972. Prior to the establishment of Interinvest, the enterprises were already transferring development funds to their domestic partners in agriculture and industry. These were ad hoc deals for which regulations were lacking, and it was difficult to determine whether this money could have been invested more advantageously in other areas.

Thus when Interinvest was established, its founders--the traditional foreign-trade enterprises or "impex-es," and the agencies representing foreign

companies--put up 1.1 billion forints. The capital has increased since then to 2.0 billion forints. We should add: primarily as a result of the founders' paying in additional capital (the tax benefits that the state budget gave the founders encouraged them to do so), and not from the insignificant reserves diminished by annual dividends and by the 1983 regulation of reserve funds.

Incidentally, the profit incentive is not free of contradictions even in Interinvest's case. For one thing, the foreign-trade enterprises are not opposed to money, and they would like Interinvest to pay its shareholders a handsome dividend at the end of the year. In this sense, they hold Interinvest's management accountable for efficient operation. But good management--at least as the foreign-trade enterprises interpret it--also means providing development resources for the foreign-trade enterprises' domestic partners, under conditions more favorable than what the banks usually offer. In this way the domestic partners are able to increase their sales, expand their export, etc.

However, the price of such assistance is relatively small profit for Interinvest. And since then the "dual incentive" has become a "triple" one, with the addition of the Interinvest staff's own incentive. Now, according to the new regulations effective as of 1 January, the personal incomes of Interinvest employees are closely linked to the rate of return on assets. It is unquestionably difficult to find the optimum in this triple maze of incentives, especially if we take into consideration that the dividends paid by Interinvest do not affect the incomes of the member enterprises' employees.

Lengthy debate preceded Interinvest's conversion into a specialized financial institution. The foreign-trade enterprises feared losing their right of control over their investments, and preparations for transferring supervision from the Ministry of Foreign Trade to the Ministry of Finance likewise did not go smoothly. (As an enterprise providing foreign-trade services, Interinvest initially had been under the supervision of the Ministry of Foreign Trade.) Now it is quite clear that Interinvest will continue to function as a specialized financial institution. If we compare the regulations applicable to specialized financial institutions with the ones that apply to enterprises in general, it is obvious that the legal status of a specialized financial institution is the more favorable. This is true also in Interinvest's case.

At the same time, the Ministry of Finance agrees that Interinvest must not lose its "acquired rights" and should continue also its commercial operations.

Among the specialized financial institutions, Interinvest appears to have the best chance of becoming a commercial and trade-development bank, a significant one even in the traditional sense. For a small bank, its capital is substantial, and the scope of its activity is relatively broad.

Work is now underway on drafting and adopting new articles of association. The uncertainties of recent months, including personnel changes, are disappearing. A new or partially new business concept will be formulated in the coming weeks and months, but now on the basis of the promulgated regulations.

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CSO: 250J/176

POLAND

PROSPECTS FOR TRADE WITH WEST GERMANY DISCUSSED

Warsaw POLITYKA in Polish No 47, 24 Nov 84 p 12

[Article by Jerzy Kleer]

[Text] The Federal Republic of Germany is one of Poland's most important economic partners. The 1970's saw a major strengthening of West Germany's position in Polish foreign trade. In 1970, exports to West Germany accounted for over 5.1 percent of total Polish exports and the respective figure for imports was 4 percent. In the later years of the decade, West Germany's share in Polish exports reached 8.1 percent, and in imports, as much as 11.9 percent. The position of West Germany as the number one trade partner of Poland outside the socialist countries was consolidated during the last decade.

Over the last 4 years (1980-1983), West Germany's share in Poland's imports amounted to 6.7-7-7.3 percent, and in exports--8.1-9.8 percent. These are very high figures. So the first characteristic feature of Polish-West German economic relations is that this country occupies an important place among Poland's foreign economic partners. The next trait of Polish-West German trade has been that--although it has been subject to major vacillations these vacillations have generally been less dramatic than in trade with most other non-socialist countries. Regardless of the diverse ups and downs of the Polish economy, the relative and absolute figures in trade with West Germany have always been high.

Imports from West Germany have always played an important role in all Polish investment and modernization programs, especially in the field of industry. Many factories and industrial branches have been using West German machinery, equipment and technologies. In the 1970's, the economic and technological links between the Polish and West German economies grew stronger. This was further encouraged by the freshly launched industrial cooperation. At the peak time, the number of cooperative contracts reached nearly 140. This augured that the structure of Polish exports to West Germany would change with time towards a greater share of machinery and equipment exports.

In the 1970's, Polish imports from West Germany considerably exceeded exports to that country. The easy access to credits in the West German capital market gave a powerful boost to imports by Polish firms. Owing to this easy access to credits coupled with the weakness of the Polish export drive and various other

limitations, including those resulting from adverse economic conditions, Poland became deeply indebted to West German financial institutions. On 31 March 1984, the debt totaled nearly \$3.5 billion, of which \$2 billion were credits guaranteed by the West German Government and \$1.5 billion were those obtained under regular business terms.

A number of conclusions useful for the further cooperation between Poland and West Germany may be drawn from the past development of the economic and technological links between the two countries.

Before I present these conclusions, let me dwell on more general issues. First of all, Poland is interested in the further development of economic, technological and scientific relations with all Western countries, including West Germany. Poland is interested not only in the further growth of trade, but also in establishing more permanent forms of cooperation.

Now for a more general observation: as Poland's most important Western partner, West Germany has the duty, perhaps only of a moral nature, to create conditions for the expansion of Polish exports also to other countries of the EEC.

Second, paying off the debt to West German financial and crediting institutions is one of the goals of the Polish Government. This may be done under terms which would be advantageous to both sides. Poland has repeatedly voiced its willingness to repay the debt.

Third, cooperation in the field of the economy, technology and science may be developed within the existing institutions; however, it is also possible to look for new forms, which would facilitate the breaking down of the existing barriers and would boost trade, industrial cooperation, scientific and technological exchange, etc.

Poland is not rigidly attached to the existing forms of cooperation. Various kinds of economic and technological links are possible, but only if they do not involve any political conditions. Cooperation has to be based on equality and mutual advantage. Poland cannot afford to endanger its economic security again in the future. That is why it has re-oriented itself towards cooperation with the countries of the CEMA. However, this does not mean that it intends to reduce its contacts with the Western countries to the minimum.

Foreign trade is and will remain the most important form of economic cooperation. The present turnover in trade with the majority of Western countries is still lower than in the past. However, when trade with the West suffered the most drastic restrictions, trade with West Germany was relatively the least affected. Also in the more distant past, Poland's relations with West Germany vacillated to the least extent. This probably means that Poland's links with the West German economy are really strong and that many West German factories and firms set great store by trade and industrial links with Poland.

An analysis of two-way trade will reveal certain important changes which have taken place over the last few years. Most important, Poland has now achieved a surplus of exports over imports, but this has been due chiefly to a drastic reduction of imports, particularly of capital goods. Unfortunately, the volume of Poland's exports to West Germany is still smaller than in the past, although the gap has largely been reduced. It remains an open question whether exports can grow unless new impulses are generated. But let us leave this problem aside for a moment. The imports situation is much worse: in 1981 they dropped by one-fourth in comparison with 1980, 1982 saw a further drop of ten-some percent and, although imports have been growing since 1983, this year they will still be nearly one-fourth lower than in 1980. This brings us to the most important current and long-range problems.

The task of utmost importance for the Polish economy is to ensure a structural surplus of exports over imports in trade with the industrially developed countries. Only in this way can Poland pay off its debt. This general principle holds also—and perhaps above all—for trade with West Germany. However, Poland can no longer proceed towards this goal the way it has been doing for the last 4 years. We cannot continue cutting down on imports, as in this way Poland's production capacities will remain idle. This trade policy had to be pursued for some time, but it cannot be maintained in the long run.

The Polish economy, particularly industry, reacts sensitively to the import of production supplies and capital goods. Development calls for imports. We have recorded the emergence of a policy of this kind this year, also in trade with West Germany. The point, however, is to create conditions which would provide for a long-term surplus of exports without imports cuts and for increasing the import of not only production supplies, but also of capital goods. If this is to be achieved, certain problems involved in promoting exports have to be solved. The solution of these problems has to involve West Germany, both because Poland's debt to this country is the highest and because West Germany is Poland's largest trade partner in the West.

What could and what should be done in this field? Generally speaking, conditions have to be created to facilitate the access of Polish goods to the West German market. An exports expansion is the only way to increasing imports and ensuring a permanent surplus, which has to be allocated to the servicing and repayment of the debt. The talks I have conducted with West German businessmen and representatives of the chambers of industry and commerce indicate that West German firms, or at least some of them, are interested in expanding economic cooperation with Poland. Industrialists and bankers approach the shaping of bilateral economic cooperation realistically. So what does the general statement that Polish goods should have easier access to the West German market mean? Several steps would be necessary to facilitate this access, most of them depending on decisions of the West German state administration. We have to realize that most current problems are related to the steps taken, or rather not taken, by this administration.

The Polish economy is what it is and the exports structure cannot be changed overnight. We have to start building the future links on the basis of the existing volume and structure of exports.

In the past, Poland derived considerable revenues from the export of services. In the early 1980's, exports accounted for about 20 percent of all Polish export revenues. Now these revenues have been largely reduced as a result of restrictions on the issue of work permits. Although we have to reckon with West Germany's concern for its unemployed, it should be stressed that this export of services has largely not been of an autonomous nature, which means that the services were linked to the export of Polish goods and could not be performed by West German employees. Lifting the restrictions on the issue of work permits could make it substantially easier for Poland to achieve a structural surplus of exports over imports. This also includes the services which are a Polish speciality, such as conservation of architectural monuments or well drilling.

Another step towards expanding Polish exports would be restricting the scope of autonomous import quotas on the part of West Germany and adopting the principle of a constant annual growth of Polish exports by some percentage points. West Germany could also assist Poland in seeking quota facilities in the entire EEC. This could involve textile and steel contracts and the export of horses, sheep, etc.

Access to a market depends not only on the kind quality and price of goods offered, but also on customs tariffs. It seems not only possible, but to some extent justified that Poland should be granted tariff reductions, perhaps for a specified period; they could be the kind of reductions enjoyed by the goods exported by the developing countries.

Naturally, Poland does not belong to this category of country and does not want to pass for one of them. However, in the years 1979-1982 its national income dropped 30 percent; this production decline was partly due to the restrictions imposed on Poland by Western countries, West Germany included. Tariff reductions may be not only a form of assistance for the Polish economy, but also a specific kind of compensation, partial of least, for the losses due to the economic restrictions.

The issue of economic restrictions provokes a lot of doubts on the West German side. It has been stressed that West Germany has not done anything of the sort and that nothing has really happened. I do not want to go into details now. But perhaps we should dwell on two issues related to the restrictions.

The first is the crediting of the import of capital goods. All over the world, deals of this kind involve credits. The suspension of credit guarantees granted by the Hermes insurance company drastically reduced the opportunities for cooperation and aggravated the problems of the Polish economy.

During talks with top-level Polish experts, the West German side stressed that Hermes would not be able to resume activity until agreements on debt rescheduling were signed with the Club of Paris. But silence fell over this issue for 2 years, and not through Poland's fault. Meanwhile, an agreement on debt rescheduling was signed with commercial bank. The paradox now is that the situation of the banks whose credits were guaranteed by the state is worse than the situation of those which did not have guarantees of this kind.

The second issue involves cooperation. As I wrote earlier, at one point the number of cooperative contracts reached 140 or so. Now only 80 are in force. Naturally, some of the blame for this drop falls on the Polish side, but it is also true that political and moral pressure and the bad political climate created by the West German media, among others, exerted a strong influence on the less resilient entrepreneurs, who backed out of these contracts. The general conclusion is that guarantees of some kind should be created to ensure that nothing of the sort would happen in the future. Naturally, this is basically Poland's problem, but it also involves West Germany as Poland's most important Western partner.

We should only return to past problems if this could help us create favorable conditions for future cooperation. The government-level talks recently held in West Germany inspire slight optimism.

A mixed commission for economic cooperation is to meet in the coming months. The meeting promises that many issues which have remained unsolved for a long time will be settled. However, we also have to note that the Polish-West German commission will be one of the last mixed Polish-Western commissions to resume activities.

The Polish side has submitted a number of proposals aimed at overcoming the impasse of a kind which has developed in the area of economic and technological cooperation. If these proposals are to be accepted, first the finance and credit issues have to be put in some kind of order. Mention is due particularly to three of these proposals.

The first is the proposal to promote industrial cooperation. In the long run, it will be very difficult to increase two-way trade unless we extend cooperation. Institutions supporting this cooperation by, for instance, transferring licenses or reducing tariffs, have to be set up in West Germany. Cooperation should also lead to transforming the structure of Polish exports--the export of manufactured and capital goods should substantially increase.

Second, the West German side has been invited to collaborate in the modernization of such industrial establishments as the oil refinery at Jedlicz, the cosmetics factory in Cracow, the paint factory in Gdynia, the glass factory in Sandomierz, and many others.

West Germany has also been invited to participate in the finishing of some projects, e.g., a factory of film and adhesive tape at Zabkowice and a plastics factory at Knurów. This would naturally appropriate financial solutions, organization of sales, etc. These are small steps, but they mean a lot at the beginning.

The third proposal concerns the promotion of cooperation in the field of science and technology. Several suggestions have been made, which both sides may find to be of interest.

In conclusion, I could repeat that there are considerable opportunities for expanding economic cooperation with West Germany. However, some effort is necessary on both sides if these opportunities are to be transformed into reality. Unless West Germany takes advantage of this chance, other Western countries may jump at it first. The West German economy is to some extent complementary to the Polish economy. But the Polish economy, too, is important to the West German economy, too, is important to the West German economy, not only in terms of bilateral relations, but also within the broader context of West Germany's economic policy towards the CEMA.

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POLAND

MATERIALS MANAGEMENT LAWS PASSED IN 1983-1984 SUMMARIZED

Warsaw GOSPODARKA MATERIALOWA in Polish No 18, Sep 84 pp 398-402

[Article by Janusz Szymanczyk: "Legislation on Materials Management"]

[Text] In 1983 and 1984, an array of legislative acts was promulgated which determined the new setup of the system of supply and turnover of production means and the management of raw and other materials.

It should be stressed with appreciation that an overwhelming majority of these legislative acts have been published in promotional publications and in the official records of ministries. Moreover, some of the acts were printed in GOSPODARKA MATERIALOWA. Therefore, employees of supply, sales, and materials management services have easy access to the texts of legislation currently in effect in their field and can resort to them in their professional activities. Nonetheless, it appears advisable to publish a complete summary of fundamental legislative acts on the issues of supply and turnover of the means of production and the raw and other materials management published in late 1983 and early 1984, indicating where the full texts were published or outlining their content briefly.

We are offering such a guide to newly promulgated regulations concerning basic issues of supply and turnover of the means of production and materials management, proceeding from the assumption that it may indeed be useful to our readers.

The Supply System

1. Resolution No 142 of the Council of Ministers of 24 October 1983 on the guidelines for material supply in the years 1984 and 1985 (see GOSPODARKA MATERIALOWA No 1-2, 1984).
2. Resolution No 50 of the Council of Ministers of 30 March 1984 amending the decree on the guidelines for material supply in the years 1984 and 1985 (MONITOR POLSKI No 10, item 67). The change is based on the obligation also to cover in full the needs associated with the production of processed goods for export to countries a list of which will be established by the minister of foreign trade. Henceforth, the distribution units in charge of the sale of materials covered by mandatory brokerage will be so obligated.

3. Guidelines of the minister of materials management of 14 December 1983 on implementing the material-technical supply in the years 1984 and 1985 (see GOSPODARKA MATERIALOWA No 1-2, 1984).

4. Resolution No 12 of the Council of Ministers of 11 February 1983 amending the decree on authority of the main and central organs of state administration to establish general conditions and samples of contracts (MONITOR POLSKI No 6, item 40). The decree authorized the minister of construction and building materials to establish general conditions for contracts on construction work performed by units of the nonsocialized economy for units of the socialized economy.

5. Resolution No 187 of the Council of Ministers of 12 December 1983 amending the decree on the contracts for delivery and sales contracts between units of socialized economy (MONITOR POLSKI 1984 No 1, item 2). The introduction of mandatory collection of contract penalties for the failure to meet contracted obligations or for meeting them inadequately is a feature of the decree. The failure to fulfill this duty results in the transfer to the state budget of 50 percent of the contract penalty due. Contract penalties are increased by between 8 and 20 percent if defective goods are delivered.

6. Order No 32 of the chairman of the Planning Commission of the Council of Ministers of 23 December 1983 on the mode of distributing balance reserves of raw and other materials which are allocated centrally in 1984 and 1985 by the Planning Commission of the Council of Ministers (OFFICIAL GAZETTE OF THE PLANNING COMMISSION OF THE COUNCIL OF MINISTERS No 1, 1984). The order applies to central balances prepared by the Planning Commission and adopted by the Council of Ministers. The reserves envisaged in these balances serve to meet the most important needs, especially additional tasks posed by the national economy, exports or taking care of the consequences of accidents and natural disasters. Requests for deliveries of raw and other materials from the reserves of central balances are submitted to the Planning Commission by ministers, heads of central offices, governors of provinces and cities with the status of a province, chairmen of central boards of trade unions and directors of management units authorized to carry out mandatory brokerage.

7. Order No 13 of the minister of materials management of 31 January 1984 on distributing balance reserves of materials covered by mandatory brokerage (not published). The order applies to the reserves of materials for which central balances are confirmed by the minister of materials management. Balance reserves serve to meet most important needs, especially the additional tasks posed by the national economy, exports or taking care of the consequences of accidents and natural disasters. Balance reserves are made available at the request of directors of units--mandatory brokers in distribution, on the basis of authorizations by the minister of materials management.

8. Decision No 4/84 of the Presidium of the Government of 9 January 1984 on maintaining the continuity of supply of pitch coke to the national economy (not published). The construction of new pitch coke batteries is envisaged. Also, the minister of metallurgy and the machine industry is obligated to ensure that the needs of the country in pitch coke substitute are met.

9. Notification by the minister of labor, wages and social affairs of 23 February 1984 about the publication of the updated text of Decree No 136/81 of the Council of Ministers on the guidelines for issuing protective and work clothing and means of personal protection to employees (MONITOR POLSKI No 8, 1984, item 58).

10. Order of minister of materials economy of 28 December 1983 on the guidelines for allocating liquid fuel in 1984 and 1985 (OFFICIAL GAZETTE OF MATERIALS MANAGEMENT No 3-4, 1984).

11. Order of the ministers of materials management and domestic trade and services of 1 December 1983 on the list of domestically produced goods to which the producer's warranty applies (MONITOR POLSKI No 44, item 263). The order envisages two lists, namely: a list of domestically produced goods to which the producer's warranty applies (242 items) and a list of machines and transportation vehicles for which the applicable minimal term of warranty is reduced in case the determined amount of work is performed sooner (8 items).

Government Orders

1. Resolution No 151 of the Council of Ministers of 4 November 1983 on government orders for materials and products (MONITOR POLSKI No 38, item 218; see also GOSPODARKA MATERIALOWA Nos 1-2, 1984).

2. Resolution No 14 of the Council of Ministers of 23 January 1984 on government orders on implementing investment projects (MONITOR POLSKI No 3, item 21). A list of investment projects covered by government orders is established in central annual plans. With regard to new investment projects, the selection of general contractor and other units filling the order occurs through unrestricted bidding organized by the parent agency of the investor.

3. Resolution No 180 of the Council of Ministers of 12 December 1983 on government orders for undertaking tasks of particular importance in developing science and technology (MONITOR POLSKI No 42, item 239). Specifically, urgent tasks of key importance in improving the condition and developing the national economy, which transcend the sphere of interests or exceed the financial resources of individual enterprises and other economic units, should be covered by government orders for undertaking tasks of particular importance in developing science and technology. These orders can also apply to selected research projects on which the advancement of science depends. According to the provisions of the decree, the chairman of the Planning Commission of the Council of Ministers, with the consent of the minister

of science, higher education and technology, and in the case of projects concerning inventions, also with the consent of the chairman of the Patent Office of the PRL:

- 1) establishes detailed technical-economic criteria and guidelines for preparing a list of tasks in the sphere of science and technology which can be subject to government orders,
- 2) establishes the procedure for submitting applications for extending these orders to individual projects,
- 3) reviews and selects applications and prepares the list for consideration by the Council of Ministers.

The ordering party in government orders is represented by ministers (heads of central offices) and other organs designated by the chairman of the Planning Commission of the Council of Ministers with the consent of the minister of science, higher education and technology.

4. Order No 30 of the ministers of materials management, domestic trade and services, and foreign trade of 27 December 1983 on designating units which make government orders (not published). This list includes over 100 groups of products and the corresponding number of units of goods turnover inside the country and abroad.

5. Order No 27 of the minister of materials management of 5 December 1983 on the sample contract for delivery of raw and other materials or means of production in particularly short supply covered by the system of government orders (not published). The order establishes the sample delivery contract only.

6. Order No 28 of the minister of materials management of 5 December 1983 on the instructions for setting up and the mode of operation of commissions for distributing government orders for materials and products (not published). Essentially, the instructions consist of technical regulations on the organization and operation of auctioning commissions at the parent agencies.

Efficiency of Materials Consumption

1. Resolution No 84 of the Council of Ministers of 1 July 1983 on the conditions for implementing the conservation program in 1983 through 1985 (see GOSPODARKA MATERIALOWA Nos 3-4, 1984). Among other things, the decree establishes that the implementation of the conservation program is coordinated by the government commissioner for conservation nominated by Order No 10 of the chairman of the Council of Ministers of 8 April 1983. It is the responsibility of the government commissioner to prepare the conservation program for 1986 through 1990 in cooperation with the main, central and local organs of state administration, to review the management of raw and other materials through inspection and control units reporting to or coordinated by the commissioner (e.g., the Inspectorate of Materials

Management) as well as to prepare in cooperation with the Planning Commission of the Council of Ministers certain estimates of the course of implementation of the conservation program and to present comprehensive annual evaluations in this matter to the Council of Ministers.

2. Resolution No 130 of the Council of Ministers of 7 October 1983 on the application in state enterprises of the experimental system of financial incentives encouraging savings in the consumption of raw and other materials (MONITOR POLSKI No 35, item 195 and GOSPODARKA MATERIALOWA Nos 3-4, 1984).

3. Resolution No 137 of the Council of Ministers of 17 October 1983 on setting up the central fund of conservation in fuels, energy, raw and other materials (see MONITOR POLSKI No 36, item 202 and GOSPODARKA MATERIALOWA Nos 3-4, 1984).

4. Order No 20 of the minister of materials management of 12 October 1983 on the guidelines for calculating materials conservation (see GOSPODARKA MATERIALOWA Nos 3-4, 1984).

5. Order No 19 of the minister of materials management of 12 October 1983 on the establishment of a list of raw and other materials covered by awards for conservation in the consumption of raw and other materials (see GOSPODARKA MATERIALOWA No 3-4, 1984).

6. Order No 23 of the minister of materials management of 31 October 1983 on establishing and applying norms and standard consumption rates for raw and other materials, fuel and energy (OFFICIAL GAZETTE OF MATERIALS MANAGEMENT No 1, 1984). It should be stressed that the order introduces a comprehensive duty of setting norms for the consumption of raw and other materials, fuel and energy in manufacturing industrial products, construction and assembly work as well as in implementing production processes and rendering services. Thus, the obligation to apply norms, standard consumption rates and indicators covering directly and indirectly used materials as well as fuel and energy includes accordingly specific, aggregated and group norms of raw and other materials' consumption, standard consumption rates of raw and other materials, norms of consumption (yields) of raw and other materials and indicators of specific energy intensity. Managers of enterprises are obligated to ensure the updating and the introduction of new guidelines for setting norms adjusted to the conditions of the enterprise, setting and overseeing the implementation of tasks in the period of reducing the existing consumption norms and setting new ones. The order outlines principles and basic notions referring to consumption norm-setting and introduces the system of state standard consumption rates of raw and other materials, fuel and energy. The Institute of Materials Management is to coordinate work on the state consumption norms.

7. Order of the minister of materials management of 31 December 1983 on the guidelines and procedure for making contributions to the conservation fund for fuel, energy, raw and other materials (MONITOR POLSKI No 2, 1984, item 18). Featured in the order are, among other things, provisions

introducing the obligation of contributing to the conservation fund the equivalent of sales of goods produced in violation of bans on a certain product, on using excessively energy- and materials-intensive technology, as well as bans on using certain materials in the production of certain goods or rendering certain services, due to exceeding the limits on electricity and gaseous fuel consumption currently in effect, to exceeding state consumption norms for fuel, energy, raw and other materials, and in the form of penalties to the failure to comply with the regulations on fuel and energy management.

8. Order of the minister of materials management of 10 March 1984 on establishing the list of fuels, energy forms and raw materials, conservation of which achieved through modernization measures result in reductions in income tax on economic units (MONITOR POLSKI No 10, item 73). The amount of reductions allowed in the income tax depends on the scope of savings achieved.

9. Resolution No 126 of the Council of Ministers of 3 October 1983 on imposing bans on using certain materials in manufacturing certain products (services), manufacturing of goods and application of excessively energy- and materials-intensive technology (not published; available through official channels).

10. Order No 21 of the minister of materials management of 22 October 1983 on the bans on using certain materials in the manufacturing of certain products (services) and the ban on manufacturing products and using excessively energy- and materials-intensive technologies (see OFFICIAL GAZETTE OF MATERIALS MANAGEMENT No 1/1984 and GOSPODARKA MATERIALOWA Nos 3-4, 1984).

11. Order No 16 of the minister of materials management of 21 February 1984 amending the order on the bans on using certain materials in the manufacturing of certain products (services) and the ban on manufacturing products and using excessively energy- and material-intensive technologies. The order amends two lists appended to the heretofore valid Order No 21/1983 of the minister of materials management, namely: the list of materials banned from use in manufacturing the enumerated products and the list of excessively materials- and energy-intensive products and technologies covered by the ban on production.

Stocks

1. Decree of the Council of Ministers of 9 January 1984 on reevaluating stocks by the units of socialized economy and the guidelines for settling with the [state] budget over the results of such reevaluation (DZIENNIK USTAW No 6, item 27). The order applies to goods and manufactured products. However, the provisions of paragraph 10, point 2 stand out, stating that the minister of finance can, with the consent of the president of the National Bank of Poland, extend the reevaluation and settlement with the budget to certain elements of raw and other materials in justified cases.

2. Resolution No 59 of the Council of Ministers of 13 April 1984 on the guidelines for setting aside and financing target reserve stocks of raw and other materials in the units of the socialized economy (not published). The decree states that target reserve stocks of raw and other materials produced both inside the country and abroad can be created if this is justified by socioeconomic considerations. A list of such raw and other materials is established in the central annual plan. The minister of materials management and proper ministers with the consent of the former can submit to the chairman of the Planning Commission proposals concerning the list in the form of requests, including the name of the unit accumulating stocks, the name and value of the stock, expected time of storage and reasons for it. The decree contains a list of raw and other materials included in target reserve stocks for 1984 and states that the units of the socialized economy in which the target reserve stocks are officially accumulated will enjoy preferential treatment as far as the credit for financing the stocks is concerned. Preferential treatment will be determined by the president of the National Bank of Poland. The decree also states that the units of the socialized economy will include the calculated costs of maintaining target reserve stocks of raw and other materials as well as interest on the bank loans for their financing in the costs of future [reporting] periods.

3. Order No 25 of the minister of materials management of 26 November 1983 on setting the aggregate macroeconomic norms of stocks (not published). The order outlines the methods of setting aggregate macroeconomic norms of stocks, mainly for the purpose of preparing balances.

4. Order No 26 of the minister of materials management of 26 November 1983 on the guidelines for setting and applying the norms of turnover means of materials stocks (OFFICIAL GAZETTE OF MATERIALS MANAGEMENT No 3-4, 1984). The decree establishes methods of norm-setting for stocks in terms of value, for, among other things, the purposes of calculating justified needs in turnover funds.

Recycled Raw Materials and Packaging

1. Resolution No 13 of the Council of Ministers of 11 February 1983 on the fund of recycled raw materials (see MONITOR POLSKI No 8, item 48 and GOSPODARKA MATERIALOWA, No 3-4, 1984).

2. Resolution No 273 of the Council of Ministers of 29 December 1982 on ensuring the conditions for the development of tire retreading (see GOSPODARKA MATERIALOWA No 3-4, 1984).

3. Order No 7 of the minister of materials management and the minister of domestic trade and services of 26 May 1983 on the recycling and full utilization of all glass containers (see GOSPODARKA MATERIALOWA No 3-4, 1984).

4. Order No 14 of the minister of materials management of 29 August 1983 on increasing the use and production of packages and packaging materials from paper and cardboard made with waste paper (see GOSPODARKA MATERIALOWA No 3-4, 1984).

5. Order No 15 of the minister of materials management of 31 August 1983 on the comprehensive collection and efficient utilization of used aluminum and tin-plated steel containers and batteries (not published). The order introduces a system of collection, procurement and efficient utilization of used aluminum and tin-plated steel containers and batteries.

Miscellaneous

1. Law of 6 April 1984 on energy management (DZIENNIK USTAW No 21, item 96). The law outlines the main principles of rational management of fuels and energy both by units of the socialized economy and units of the nonsocialized economy and private persons. Also, the law determines responsibility for failure to comply with the principles and regulations on the protection of power installations, fuel and energy.

2. Notification of the minister of prices of 15 February 1984 about the publication of the updated text of the law on prices (DZIENNIK USTAW No 13, 1984, item 59).

3. Resolution No 195 of the Council of Ministers of 27 December 1983 on the ban on increasing contract prices of supply items and producer goods by units of the socialized economy (MONITOR POLSKI No 3, item 253). For the period between 1 January and 31 December 1984, the law imposed a ban on increasing contract prices of supply items and producer goods manufactured by units of the socialized economy. In the event the costs of production change for reasons beyond the control of producers, the price can be increased only by the amount corresponding to the growth of production costs due to reasons beyond the control of producers.

4. Decree of the Council of Ministers of 3 February 1984 amending the order on the extent of application of the law on state enterprises and on the self-government of the work forces of state enterprises to state enterprises which work either totally or largely to meet the needs of defense and state security, and also to organizational units of other enterprises working toward the same end, as well as to state enterprises reporting to the minister of national defense (DZIENNIK USTAW No 10, item 41). The order introduces several amendments to the provisions of the order in effect thus far. A noteworthy provision states, among other things, that the chairman of the Defense Industry Committee of the Council of Ministers can, at the request of interested members of the committee, revoke the reduction in encumbrances on the enterprise envisaged by the Statute of Defense Industry enterprises for a period of 3 months, due to the tardy filling of defense orders which is the fault of the enterprise. The order includes regulations on the organs of associations of defense industry enterprises and outlines the responsibilities and jurisdiction of these organs. Another noteworthy provision states that the director of an association is to oversee materials management in the member enterprises as far as it is associated with satisfying defense needs.

5. Resolution No 25 of the Council of Ministers of 6 February 1984 on marking products with the state quality marks and safety marks and on the

economic consequences of inadequate quality (MONITOR POLSKI No 6, item 45). The provision should be noted whereby a socialized enterprise which fails to obtain the required qualifying certificate of quality for its products transfers to the state budget 50 percent of the proceeds from the sale of such products.

6. Order No 30 of the chairman of the Polish Committee for Standardization, Measures and Quality of 14 July 1983 on establishing a list of products covered by quality testing and or organizational units assigned and authorized to administer tests (see GOSPODARKA MATERIALOWA No 3-4, 1984).

7. Order No 10 of the minister of materials management of 24 July 1983 on standardization in the Ministry of Materials Management (not published). Standardization activities in the Ministry of Materials Management are carried out by the Main Research and Development Center for Packaging in Warsaw with regard to general issues in packaging; by the Institute of Storage Management in Poznan with regard to basic indicators and technical requirements in warehouses and storage facilities for products and of equipment and machinery in that field; by the Association of Raw Materials Recycling Enterprises in Lodz with regard to the management of nonmetallic recycled raw materials and the production of goods from certain wastes.

8. Resolution No 127 of the Council of Ministers of 3 October 1983 amending the decree on setting up experimental auctions for sales of hard currency to state enterprises based on the criteria of efficiency (MONITOR POLSKI No 35, item 193). The amendment consists primarily of extending the provisions on hard currency auctions to state enterprises and cooperatives not participating in the system of hard currency deductions which will ensure the highest economic efficiency in using the obtained funds in manufacturing and services.

9. Order of the minister of materials management of 28 November 1983 on the guidelines for preparing and applying standards for natural losses and on continuous improvement in the methods of measuring natural losses in storage facilities and transportation (MONITOR POLSKI No 42, item 243). The minister of materials management has established specific guidelines for preparing and applying standards for natural losses and entrusted the Institute of Storage Management in Poznan with the entirety of research work associated with continuous improvement in methods and of preparing and applying standards for natural losses.

9761

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POLAND

MIXED REVIEW OF PROGRESS OF REFORM IN BUILDING INDUSTRY

Warsaw PROBLEMY ROZWOJU BUDOWNICTWA in Polish No 3, 1984 pp 10-11

[Article by Wladyslaw Brinchen, staff member, Institute for the Study of the Organization, Management and Economics of the Construction Industry: "The State of Progress of Reform in the Building Industry"]

[Text] We are now in the third year of changes brought about by new management. Every year we make changes in the economic-financial system. We are discussing the shape of the building industry. We speak about the need to improve internal enterprise accounting. Many questions and doubts have developed in connection with the initiation of basic reform in the building industry. It seems that five main questions must be answered. The questions are as follows:

1. At which stage are we in the economic reform of the building industry?
2. How have the principal activities of enterprises been implemented: self-dependence, self-government and self-financing?
3. What have the enterprises obtained as a result of the reform?
4. How do the enterprises' existing instruments and mechanisms function within the economic system?
5. What has the national economy obtained from the building industry as a result of the economic reform?

The answer to the first question is the most complicated and views on the subject can be different, even opposing. If we answer this question from the view of the enterprises, then the view is rather explicit. In the first year of the new law--1982--we were closer to initiating the reform than we are now in the third year. The year 1982 marked the period when the distribution system had stopped functioning. The indirect influence on the enterprises from the central offices had not yet formed. The enterprises profited from this situation.

If we answer this question from the point of view of the central offices (for example, the parent agency), then the answer will be explicit, but it will

also be totally different from the one cited above. This year we are closer to the goal than in 1982, when chaos dominated. During the period of the past 2 years, we have shaped the form of indirect influence and now we can talk about enterprise activity, taking into consideration social demands formulated in the mechanism of indirect influence (for example, tax relief and the factor dealing with obligations of the State Professional Activation Fund).

Combining here the two presented extreme points of view on the initiation of reform, we must state that implementation of the objective stage is still before us. We are still at the stage of initiation and have a long way to go. We often have had to change the instruments and mechanisms needed to confront reality.

A more explicit issue is the answer to the second question.

The principle of self-dependence has been implemented to a large degree. The enterprises from 1982 have shaped their portfolio independently and chosen their work or installations in accordance with their own views. Of course, they have had to take into consideration social demands, expressed either by government requests, material supplies or relief and preference. However, the road to full self-dependence is still a long one. Still to be worked out is dependence on the bank, as credit remains the principal source of financing of turnover means. At the moment of the "start" of the reform, the building enterprises were not properly subsidized and as a result the bank still has the lead role in financing building activity. As long as credit (in the third year of functioning of the new principles, 50 percent covered supplies and dependencies) is not limited to 20-30 percent, it is difficult to talk about self-dependence for the building enterprises. Taking this fact into consideration, the self-dependence of industrial enterprises and collective enterprises is comparatively larger.

The principle of self-dependence is closely tied to the principle of self-financing. If we take into consideration the earning power of the activity, then the answer is positive. In theory deficits do not exist in the building enterprises. The achieved profit covers in part the needs of enterprises during the course of creating a personnel fund and a development fund. However, the size of this profit is not enough to eliminate the basic source of financing, which is credit. Therefore, one can state that he has implemented self-financing only partially. The weight of credit is large enough that the prospects for self-financing are far away.

Implementation of the principle of self-government, without which it is difficult to talk about introducing reform, is a matter for the future.

Very important is the matter of benefits that the building enterprises already have achieved in this initiation period. The benefits are visible and it is useful to state a few words about them. The benefits--in addition to increasing self-dependence--are:

- a) partially covering the nondelivery of turnover means remaining from activity of the last years of the command-distribution system;
- b) bringing profit to current activity;
- c) resolving problems of work in progress.

The first benefit was partially covering insufficiency that appeared in 1980-81. This resulted from the enterprises' deficit activity. The full coverage has not been realized. However, the economic reform has brought about this benefit.

Ridding themselves of the stiff, unrealistic cost prices, which had been printed in the catalogues of cost calculation, became the main objective of the building enterprises. Maybe there will be some reservations about the price system and the principle of price construction, as was the case in 1982-83, but it is true that the deficit has disappeared. The profit was made exclusively from changes in prices. But this also has doubled the profit for the national economy, as well as the enterprises and their workers.

Through many years of the command-distribution system in the building industry, a system of one-time settlement was obligatory. This means that the invoice for completed work was presented by the issuer only after completion of the work. The long cycle of production time meant that the price was increasing constantly, driving up the cost of the final invoice. Also accepted was that work in progress could be financed through credits. The bank then took over control of the projects and any lateness in delivery of scheduled completions was met with sanctions. The one-time settlement system became one of the reasons for the deepening financial difficulties of the building enterprises. The one-time settlement system was abolished immediately upon the introduction of the economic reform. A system of invoicing ongoing work has been introduced. Most of the enterprises now use a monthly invoice system that gives them a marked profit. Work in progress, which previously had been around 80 percent of all turnover means, now is only 10-20 percent and sometimes not visible. This situation has curbed the need for credits and improved substantially the financial situation of the building enterprises.

Let us touch upon the principal question concerning the activity of individual instruments. We shall discuss the most important ones, omitting those bound to the incentive system, which will require a separate discussion. The instruments we would like to discuss are:

- the price system from 1982-83;
- the tax system;
- the credit system;
- criteria for evaluating activities.

The principal form of price formation in the building industry in 1982-83 was catalogued prices and M-82 factors. The methods for fixing the M-82 factors were not the best. In many cases, the factors were too high, allowing for easy profits and convenient use by investor and executor.

An adjudication that would decide the prices for work, especially in the system of conventional prices, was never developed.

Conventional prices and fixed prices (both existed in 1982-83) were not favorable for lowering the cost. On the contrary--this was for the fixed-price category--as the costs rose, there was the possibility for higher profits. The regulations concerned themselves only with the size of profits in calculating prices.

During the previous 2 years, the foundation for the price system had been established, which should have enlisted the enterprises to lower their costs. The foundation is comprised of the following elements:

- standardizing the method of cost calculation and introducing the obligation of making individual cost calculations;
- verifying the normalization base;
- introducing the standard indicators for general costs,
- introducing the category of legitimate costs.

The income tax plays the principal role in the tax system. The income tax is based on a system of progressive taxation as income raises. The scale of the graduated progressive taxation had been criticized from the beginning. This problem was resolved in the first year. The high scale of the progression had a certain influence on the lack of desire to increase production and thereby to increase profits. However, the income tax has had positive influence on materials-intensive production. Regularly conducted research has shown that materials-intensive production has contributed to a lowering of the profit indicator. But the abandonment of this indicator has led to a weakening of materials-intensive production.

Introduction of the linear tax (in the place of the progressive tax) has had a definite influence on the lowering of profit for the building enterprises. This new form of income tax will be unfavorable for the building enterprises. In 1982-83, taxes accounted for around 40 percent of generated income; at present, it is 60 percent (first half of the year 1984--48 percent).

The credit system in 1982-83 had only two credits for use in encouraging construction: the principal credit and the payment credit. The principal credit partially covered reserve funds and amounts. The credit system was in the mechanism of the economic-financial system as opposed to the method of dispersing credits from the 1970's-- the period of command distribution.

An agreement between the building enterprise and the bank was the main way in which to obtain credit. The bank awarded credit if the enterprise had a good credit reference and capacity to repay the credit. A partnership between the enterprise and the bank was formed. But the situation began to become complicated in 1983 when the bank, at first reluctantly, started a tough credit policy. This policy sharpened in 1984 when the bank introduced value testing procedures of the enterprises activities and capacity to repay credits. The main credits were then divided into five different credits. This means there has been a return to the credit system of the 1970's.

The value testing procedure is not a trifling matter. The reform uses only profit as the measure of evaluation of enterprises. The first year of the reform confirms the early achievement of the goal. The second year complicated the situation through the introduction of a second indicator, the net production. The dual indicator system of valued activity through profits earned and net production now is the standard evaluation procedure. This raises the question as to which indicator is the more valuable. It is accepted that the dual indicator system can function temporarily, that is, in the period of initiating the economic reform.

The third year brought an increase in the number of indicators. Besides the two mentioned above, the credit capacity of the enterprises and the method used to evaluate that capacity have become increasingly important. Other indicators are management efficiency, work output, productivity of assets, cost levels, etc.

Model indicators have begun to appear as the means by which to shape costs (e.g., general costs).

The activities have created the danger of getting lost in a flood of indicators that hinder the primary goal, the achievement of profits. We hope that these indicators are bound to the introduction of the reform and will not hamper the building enterprises in the long run.

There remains one last question--what have been the achievements of the national economy?

An answer to this question is necessary. It should shape further actions and the methods used to correct former actions.

The society is waiting for the building industry to increase its production and to improve the quality of its work. The goal is clear, but the realization is far away. After 2 years of reform, the results still are not substantial and cannot be substantial. We still have to wait for the effects. There are many obstacles that must be removed before we can discuss the social benefits. The obstacles are:

- reduced material reserves, especially with respect to finishing work, and shortages in the infrastructure;
- diffusion of investment causing a distance between demand and supply of construction work;
- an inconsistent policy of directing interested developers to implement specified projects (it seems that apartment and renovation developers should take advantage of considerably larger incentives than is the case now).

Removal of these obstacles will guarantee the goals that we await from the building industry.

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POLAND

AGING PLANT, SHRINKING MANPOWER IN FOUNDRY INDUSTRY

Warsaw ZYCIE WARSZAWY in Polish 6 Dec 84 p 6

[Article by (kmk): "61,000 Employees--Almost 2 Million Tons of Product: Metal Casting Remains Archaic"]

[Text] There are more than 100 kilograms of castings installed in every household in the form of pipes, cast-iron radiators, fixtures and other equipment. On the average, metal castings from grey, ductile cast iron, cast steel and nonferrous metals represent more than 30 percent of the total weight of machines and equipment, and in machine tools and internal combustion engines, for example, it is even one-half.

These figures reflect the extent of the problem. For years it has been said that our constructions, machines and equipment are too heavy, that there is simply too much iron in them and too little subtle technological thought. As a result, Poland stands in sixth place among European producers of metal castings but the domestic industry continues to lack those parts.

The production of 1 ton of cast iron metal requires the consumption of more than 4 tons of raw material and fuel. That is why the precise making of metal castings, compliance with technological principles and the introduction of more economical practices are so important. It is estimated that the number of rejections due to imperfections is twice as high as elsewhere. Abroad, 1 to 3 percent of defective castings are repaired by means of welding or sealing with synthetic substances. These techniques are seldom used in Poland. And it is worth realizing that the repair of 1 percent of rejections constitutes a recovery of approximately 19,000 tons of metal castings.

We have examples of modern solutions in our foundries, at least in the mill activated in Lublin last year. There are 53 automated molding lines in operation in the entire country, and there is automation for casting and shaping elements. However, the majority of plants are old factories with very arduous technologies. They also experience largest personnel shortages. And, of course, metal casting is quite essential to the functioning of many subsectors of the economy.

One of the new technologies in metal casting is the use of castings from spheroidal cast iron. One ton of such cast iron replaces 1.5 tons of

traditional material. Spheroidal material is also considerably better (although it cannot be used everywhere) than the traditional cast iron or cast steel. Last year, in excess of 45,000 tons of goods was produced in the country from spheroidal cast iron, which represents 2.5 percent of total metal casting produced from iron alloys. Similar ratios have been recorded, for example, in the FRG, where it amounted to 23 percent; in France, 38 percent; in Great Britain, almost 18 percent. One of the programs for the development of the metal casting subsector even anticipates considerable improvement in the production of spheroidal cast iron, and precision metal casting requiring no further treatment. However, this will be costly.

There are 601 foundries and metal casting departments operating in all possible kinds of industrial plants in the country. They employ 61,000 experts who work, let us add, mostly under difficult conditions accompanied by high temperatures and tremendous amounts of dust. In 1978, which was our best year, foundries had supplied the economy with more than 2.6 million tons of goods; it is anticipated that this year's production will be approximately 2 million tons of metal castings. It is a well-known fact that this will not suffice; it is also known that metal casting and construction requiring foundry products require general modernization.

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POLAND

AUTOMATED PROCESS CONTROL EQUIPMENT EXPORT

Warsaw ZYCIE WARSZAWY in Polish 6 Dec 84 p 1

[Article by (Ch): "From Planning Stage and Installation to Supervision by Designer; A New Generation of Polish Automation for the GDR"]

[Text] The Metronex Foreign Trade Company has signed a contract with Industrieanlagen-Import in Berlin valued at approximately 30 million rubles for automated process control equipment for the Karl Marx Stadt power station. This is the largest contract of this type ever negotiated between Metronex and GDR partners.

Obligations arising under the agreement will be performed during the years 1985 to 1987, and their scope will include design, delivery of materials, installation and activation of automatic control systems.

This important task will be implemented by factories located in Ostrow Wielkopolski which have already for years been specializing in the automation of power. They have to their credit a whole series of deliveries to power facilities in the GDR. Factories in Ostrow Wielkopolski, utilizing long years of experience with facilities of this type in Poland as well as abroad, have organized a skilled cadre of technicians and also modern solutions with the employment of computer technology. This, among others, was the determining factor upon which our supplier was entrusted with the implementation of this important contract.

It is worth adding that besides heat and power generating stations, within the framework of contracts negotiated by Metronex, more than 10 other GDR facilities were supplied with automated process control equipment in the chemical, paper, and pharmaceutical industries, as well as in agriculture (fodder plants and stock-breeding farms). In addition to automation industry plants in Ostrow Wielkopolski, the principal suppliers of automation are Mera-Pnefal in Warsaw, Meramont in Poznan and Mera-Elwro in Wroclaw.

Thus, for example, Mera-Pnefal as a qualified supplier of automation for chemical facilities has to its credit approximately 200 process control undertakings implemented chiefly in leading GDR factories, such as VEB Leuna Werke, FIFA Wolfen, CKB Bitterfeld and CK Buna. In coming years

it will assume new difficult assignments related to work on the pharmaceutical factory in Neubrandenburg.

In the past Poznan factories specialized in the automation of stock farms and fodder plants (approximately 150 such facilities were automated). Mera-Elwro has for years implemented installation for paper mills in Rosenthal.

To improve operational efficiency, pilot plants have been set up in Lipsk and Karl Marx Stadt employing highly qualified designers from Poland, who among other things work out technical offers on location, draft documentation and also conduct technical supervision by the designer.

The contact which has been recently signed can be treated as the beginning of a new stage of cooperation with the GDR from the standpoint of magnitude as well as technological degree.

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POLAND

BRIEFS

BABY FOOD PLANT EXPANSION--The construction of a large baby food plant, that is, fruit and vegetable foods for infants and children, located in the Rzeszow Plants of the Fructopol Fruit and Vegetable Industry, has reached its most important phase. The installation of machines and equipment, among others a Dutch bottling line, has begun. Soon a trial run will be held at other plant facilities, such as refrigeration equipment and storage rooms. The new plant should produce at least 12,000 tons of product for children annually, which amounts to practically twice the existing production capacity of Rzeszow Fructopol. [Text] [Warsaw ZYCIE WARSZAWY in Polish 6 Dec 84 p 6] 9951

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